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SCATTERING CHARACTERISTICS OF  
HOMOGENEOUS AND INHOMOGENEOUS  
PARTICLES: SCATTERING IN THE VISIBLE  
AND NEAR INFRARED

Wolfram G. Blaettner, et al

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13. ABSTRACT Data are presented that give the absorption and extinction efficiencies for both homogeneous spherical aerosol particles and inhomogeneous spherical shell aerosol particles as a function of the size parameter $x = 2\pi r/\lambda$ . The data giving the scattering properties of aerosols were computed with machine procedures using Mie theory. Calculations were run to investigate the effect of the atmospheric humidity on the macroscopic scattering properties of aerosols for visible and near infrared light. Data are also presented that give scattering, absorption, and extinction coefficients and the phase matrix for visible and infrared light scattering with tropospheric, stratospheric, and fog particles.			

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## PREFACE

This report is Supplement No. 1 to the Final Report (Part I) under Contract No. F19628-73-C-0130. This report presents the results of computations of cross sections and angular scattering data for homogeneous and inhomogeneous particles using Mie theory. This report gives the results of Mie calculations for single particles as well as macroscopic scattering data for different aerosol size distributions in the visible and near infrared.

Supplement No. 2 of the Final Report (Part I) tabulates scattering data for different types of aerosol particles in the infrared using a  $r^{-4.5}$  size distribution.



## TABLE OF CONTENTS

	<u>Page</u>
PREFACE	i
LIST OF FIGURES	iv
LIST OF TABLES	vi
I. INTRODUCTION	1
II. EFFICIENCY FACTORS FOR HOMOGENEOUS AND INHOMOGENEOUS PARTICLES	3
III. SCATTERING PROPERTIES OF HUMID AEROSOL PARTICLES	12
IV. SCATTERING PROPERTIES OF TROPOSPHERIC AEROSOL PARTICLES	17
4.1 Scattering Functions for Type B Aerosols	17
4.2 Scattering Functions for Type A Aerosols	25
4.3 Scattering Functions for Type C Aerosols	31
V. SCATTERING FUNCTIONS FOR STRATOSPHERIC AEROSOLS	42
VI. FOG SCATTERING IN THE VISIBLE AND NEAR IR	46
REFERENCES	49
APPENDIX A. Normalized Phase Matrices for Aerosol Particles in an Atmosphere with a Relative Humidity of 75%	51
APPENDIX B. Normalized Phase Matrices for Type B Aerosols	62
APPENDIX C. Normalized Phase Matrices for Type A Aerosols	91
APPENDIX D. Normalized Phase Matrices for Type C Aerosols	104
APPENDIX E. Normalized Phase Matrices for Stratospheric Aerosols	125
APPENDIX F. Normalized Phase Matrices for Fog Particles	136

# LIST OF FIGURES

<u>Figure</u>		<u>Page</u>
1.	Efficiency Factors for Dry Aerosol Particles	4
2.	Efficiency Factors for Inhomogeneous Aerosol Particles at a Relative Humidity of 75%	4
3.	Efficiency Factors for Homogeneous and Inhomogeneous Aerosol Particles at a Humidity of 75%: $\lambda = 0.3\mu$	5
4.	Efficiency Factors for Homogeneous and Inhomogeneous Aerosol Particles at a Relative Humidity of 75%: $\lambda = 1.0\mu$	5
5.	Efficiency Factors for Aerosols at 95% and 99.9% Relative Humidity: $\lambda = 1.0\mu$	6
6.	Efficiency Factors for Carbon Particles With and Without Water Shells: $\lambda = 1.0\mu$	6
7.	Efficiency Factors for Water Particles Coated With Material of Higher Refractive Index: $r/r_1 = 1.348$	7
8.	Efficiency Factors for Air Bubbles in Water and Water-Suspended Carbon Particles	7
9.	Efficiency Factors for Hydrosol Particles	8
10.	Efficiency Factors for Water Bubbles	8
11.	Ellipticity for Aerosol Particles at 75% Relative Humidity	16
12.	Sky Scattering Function for $r^{-5}$ Size Distribution and $0.45\mu$ Wavelength Light; Index of Refraction = $1.55 - 0.01i$	22
13.	Sky Scattering Function for $r^{-5}$ Size Distribution and $1.60\mu$ Wavelength Light; Index of Refraction = $1.55 - 0.01i$	23
14.	Color Ratios in the Solar Almucantar for $r^{-5}$ Size Distribution ( $I(0.7\mu)/I(0.45\mu)$ , Upper Graph; $I(1.60\mu)/I(0.7\mu)$ , Lower Graph)	24

# LIST OF FIGURES (Continued)

<u>Figure</u>		<u>Page</u>
15.	Model Size Distributions for Type A Aerosols	27
16.	Normalized Scattering Functions for Type A Aerosols, $\lambda = 0.70\mu$	29
17.	Color Ratios for Type A Aerosol Size Distributions ( $I(0.7\mu)/I(0.45\mu)$ )	30
18.	Model Size Distributions for Type C Aerosols	33
19.	Normalized Scattering Functions for Type C Aerosols, $\lambda = 0.70\mu$	35
20.	Color Ratios for Type C Aerosol Size Distributions ( $I(0.7\mu)/I(0.45\mu)$ )	36
21.	Sky Scattering Function for Model 100, $\lambda = 0.45\mu$	37
22.	Sky Scattering Function for Model 100, $\lambda = 0.70\mu$	38
23.	Sky Scattering Function for Model 100, $\lambda = 1.60\mu$	39
24.	Color Ratios of Sky Radiances for Model 100. ( $I(0.7\mu)/I(0.45\mu)$ , upper graph; $I(1.6\mu)/I(0.7\mu)$ , lower graph)	41
25.	Normalized Phase Function for Stratospheric Aerosols, $\lambda = 0.55\mu$	45
26.	Normalized Phase Function for Fog Models, $\lambda = 0.6943\mu$	48

# LIST OF TABLES

	<u>Page</u>
I. Optical Constants for Aerosols at 75% Relative Humidity	14
II. Size Distributions for Type B Aerosol Models	19
III. Attenuation Data for Type B Aerosols	20
IV. Size Distributions for Type A Aerosol Models	26
V. Attenuation Data for Type A Aerosols	28
VI. Size Distributions for Type C Aerosol Models	32
VII. Attenuation Data for Type C Aerosols	34
VIII. Scattering Coefficients for Stratospheric Aerosols	43
IX. Fog Particle Parameters	47
X. Attenuation Coefficients for Fog	47
A1. Normalized Phase Matrix for Spherical-Shell Particles at 75% Relative Humidity, $\lambda=0.30\mu$	52
A2. Normalized Phase Matrix for Spherical-Shell Particles at 75% Relative Humidity, $\lambda=0.40\mu$	53
A3. Normalized Phase Matrix for Spherical-Shell Particles at 75% Relative Humidity, $\lambda=0.55\mu$	54
A4. Normalized Phase Matrix for Spherical-Shell Particles at 75% Relative Humidity, $\lambda=0.70\mu$	55
A5. Normalized Phase Matrix for Spherical-Shell Particles at 75% Relative Humidity, $\lambda=1.00\mu$	56
A6. Normalized Phase Matrix for Homogeneous Particles at 75% Relative Humidity, $\lambda=0.30\mu$	57
A7. Normalized Phase Matrix for Homogeneous Particles at 75% Relative Humidity, $\lambda=0.40\mu$	58
A8. Normalized Phase Matrix for Homogeneous Particles at 75% Relative Humidity, $\lambda=0.55\mu$	59

# LIST OF TABLES (Continued)

	<u>Page</u>
A9. Normalized Phase Matrix for Homogeneous Particles at 75% Relative Humidity, $\lambda=0.70\mu$	60
A10. Normalized Phase Matrix for Homogeneous Particles at 75% Relative Humidity, $\lambda=1.00\mu$	61
B1. Normalized Phase Matrix for Type B Aerosols, $m=1.50-0.01i$ , $r_1=0.06\mu\text{m}$ , $v=4.0$ , $\lambda=0.30\mu$	63
B2. Normalized Phase Matrix for Type B Aerosols, $m=1.50-0.01i$ , $r_1=0.06\mu\text{m}$ , $v=4.0$ , $\lambda=0.45\mu$	64
B3. Normalized Phase Matrix for Type B Aerosols, $m=1.50-0.01i$ , $r_1=0.06\mu\text{m}$ , $v=4.0$ , $\lambda=0.70\mu$	65
B4. Normalized Phase Matrix for Type B Aerosols, $m=1.50-0.01i$ , $r_1=0.06\mu\text{m}$ , $v=4.0$ , $\lambda=1.60\mu$	66
B5. Normalized Phase Matrix for Type B Aerosols, $m=1.50-0.01i$ , $r_1=0.01\mu\text{m}$ , $v=4.5$ , $\lambda=0.30\mu$	67
B6. Normalized Phase Matrix for Type B Aerosols, $m=1.50-0.01i$ , $r_1=0.01\mu\text{m}$ , $v=4.5$ , $\lambda=0.45\mu$	68
B7. Normalized Phase Matrix for Type B Aerosols, $m=1.50-0.01i$ , $r_1=0.01\mu\text{m}$ , $v=4.5$ , $\lambda=0.70\mu$	69
B8. Normalized Phase Matrix for Type B Aerosols, $m=1.50-0.01i$ , $r_1=0.01\mu\text{m}$ , $v=4.5$ , $\lambda=1.60\mu$	70
B9. Normalized Phase Matrix for Type B Aerosols, $m=1.50-0.01i$ , $r_1=0.06\mu\text{m}$ , $v=4.5$ , $\lambda=0.30\mu$	71
B10. Normalized Phase Matrix for Type B Aerosols, $m=1.50-0.01i$ , $r_1=0.06\mu\text{m}$ , $v=4.5$ , $\lambda=0.45\mu$	72
B11. Normalized Phase Matrix for Type B Aerosols, $m=1.50-0.01i$ , $r_1=0.06\mu\text{m}$ , $v=4.5$ , $\lambda=0.70\mu$	73
B12. Normalized Phase Matrix for Type B Aerosols, $m=1.50-0.01i$ , $r_1=0.06\mu\text{m}$ , $v=4.5$ , $\lambda=1.60\mu$	74
B13. Normalized Phase Matrix for Type B Aerosols, $m=1.50-0.01i$ , $r_1=0.12\mu\text{m}$ , $v=4.5$ , $\lambda=0.30\mu$	75

# LIST OF TABLES (Continued)

	<u>Page</u>
B14. Normalized Phase Matrix for Type B Aerosols, $m=1.50-0.01i$ , $r_1=0.12\mu\text{m}$ , $v=4.5$ , $\lambda=0.45\mu$	76
B15. Normalized Phase Matrix for Type B Aerosols, $m=1.50-0.01i$ , $r_1=0.12\mu\text{m}$ , $v=4.5$ , $\lambda=0.70\mu$	77
B16. Normalized Phase Matrix for Type B Aerosols, $m=1.50-0.01i$ , $r_1=0.12\mu\text{m}$ , $v=4.5$ , $\lambda=1.60\mu$	78
B17. Normalized Phase Matrix for Type B Aerosols, $m=1.50-0.01i$ , $r_1=0.06\mu\text{m}$ , $v=5.0$ , $\lambda=0.30\mu$	79
B18. Normalized Phase Matrix for Type B Aerosols, $m=1.50-0.01i$ , $r_1=0.06\mu\text{m}$ , $v=5.0$ , $\lambda=0.45\mu$	80
B19. Normalized Phase Matrix for Type B Aerosols, $m=1.50-0.01i$ , $r_1=0.06\mu\text{m}$ , $v=5.0$ , $\lambda=0.70\mu$	81
B20. Normalized Phase Matrix for Type B Aerosols, $m=1.50-0.01i$ , $r_1=0.06\mu\text{m}$ , $v=5.0$ , $\lambda=1.60\mu$	82
B21. Normalized Phase Matrix for Type B Aerosols, $m=1.55-0.01i$ , $r_1=0.06\mu\text{m}$ , $v=4.5$ , $\lambda=0.45\mu$	83
B22. Normalized Phase Matrix for Type B Aerosols, $m=1.55-0.01i$ , $r_1=0.06\mu\text{m}$ , $v=4.5$ , $\lambda=0.55\mu$	84
B23. Normalized Phase Matrix for Type B Aerosols, $m=1.55-0.01i$ , $r_1=0.06\mu\text{m}$ , $v=4.5$ , $\lambda=0.70\mu$	85
B24. Normalized Phase Matrix for Type B Aerosols, $m=1.55-0.01i$ , $r_1=0.06\mu\text{m}$ , $v=4.5$ , $\lambda=1.60\mu$	86
B25. Normalized Phase Matrix for Type B Aerosols, $m=1.55-0.01i$ , $r_1=0.06\mu\text{m}$ , $v=5.0$ , $\lambda=0.45\mu$	87
B26. Normalized Phase Matrix for Type B Aerosols, $m=1.55-0.01i$ , $r_1=0.06\mu\text{m}$ , $v=5.0$ , $\lambda=0.55\mu$	88
B27. Normalized Phase Matrix for Type B Aerosols, $m=1.55-0.01i$ , $r_1=0.06\mu\text{m}$ , $v=5.0$ , $\lambda=0.70\mu$	89
B28. Normalized Phase Matrix for Type B Aerosols, $m=1.55-0.01i$ , $r_1=0.06\mu\text{m}$ , $v=5.0$ , $\lambda=1.60\mu$	90

# LIST OF TABLES (Continued)

	<u>Page</u>
C1. Normalized Phase Matrix for Type A Aerosols, Model 200, $\lambda=0.45\mu$	92
C2. Normalized Phase Matrix for Type A Aerosols, Model 200, $\lambda=0.55\mu$	93
C3. Normalized Phase Matrix for Type A Aerosols, Model 200, $\lambda=0.70\mu$	94
C4. Normalized Phase Matrix for Type A Aerosols, Model 200, $\lambda=1.60\mu$	95
C5. Normalized Phase Matrix for Type A Aerosols, Model 500, $\lambda=0.45\mu$	96
C6. Normalized Phase Matrix for Type A Aerosols, Model 500, $\lambda=0.55\mu$	97
C7. Normalized Phase Matrix for Type A Aerosols, Model 500, $\lambda=0.70\mu$	98
C8. Normalized Phase Matrix for Type A Aerosols, Model 500, $\lambda=1.60\mu$	99
C9. Normalized Phase Matrix for Type A Aerosols, Model 600, $\lambda=0.45\mu$	100
C10. Normalized Phase Matrix for Type A Aerosols, Model 600, $\lambda=0.55\mu$	101
C11. Normalized Phase Matrix for Type A Aerosols, Model 600, $\lambda=0.70\mu$	102
C12. Normalized Phase Matrix for Type A Aerosols, Model 600, $\lambda=1.60\mu$	103
D1. Normalized Phase Matrix for Type C Aerosols, Model 100, $\lambda=0.45\mu$	105
D2. Normalized Phase Matrix for Type C Aerosols, Model 100, $\lambda=0.55\mu$	106
D3. Normalized Phase Matrix for Type C Aerosols, Model 100, $\lambda=0.70\mu$	107

# LIST OF TABLES (Continued)

	<u>Page</u>
D4. Normalized Phase Matrix for Type C Aerosols, Model 100, $\lambda=1.60\mu$	108
D5. Normalized Phase Matrix for Type C Aerosols, Model 300, $\lambda=0.45\mu$	109
D6. Normalized Phase Matrix for Type C Aerosols, Model 300, $\lambda=0.55\mu$	110
D7. Normalized Phase Matrix for Type C Aerosols, Model 300, $\lambda=0.70\mu$	111
D8. Normalized Phase Matrix for Type C Aerosols, Model 300, $\lambda=1.60\mu$	112
D9. Normalized Phase Matrix for Type C Aerosols, Model 400, $\lambda=0.45\mu$	113
D10. Normalized Phase Matrix for Type C Aerosols, Model 400, $\lambda=0.55\mu$	114
D11. Normalized Phase Matrix for Type C Aerosols, Model 400, $\lambda=0.70\mu$	115
D12. Normalized Phase Matrix for Type C Aerosols, Model 400, $\lambda=1.60\mu$	116
D13. Normalized Phase Matrix for Type C Aerosols, Model 700, $\lambda=0.45\mu$	117
D14. Normalized Phase Matrix for Type C Aerosols, Model 700, $\lambda=0.55\mu$	118
D15. Normalized Phase Matrix for Type C Aerosols, Model 700, $\lambda=0.70\mu$	119
D16. Normalized Phase Matrix for Type C Aerosols, Model 700, $\lambda=1.60\mu$	120
D17. Normalized Phase Matrix for Type C Aerosols, Model 800, $\lambda=0.45\mu$	121
D18. Normalized Phase Matrix for Type C Aerosols, Model 800, $\lambda=0.55\mu$	122



# LIST OF TABLES (Continued)

		<u>Page</u>
D19.	Normalized Phase Matrix for Type C Aerosols, Model 800, $\lambda=0.70\mu$	123
D20.	Normalized Phase Matrix for Type C Aerosols, Model 800, $\lambda=1.60\mu$	124
E1.	Normalized Phase Matrix for Stratospheric Aerosols, Model 20, $\lambda=0.41\mu$	126
E2.	Normalized Phase Matrix for Stratospheric Aerosols, Model 20, $\lambda=0.50\mu$	127
E3.	Normalized Phase Matrix for Stratospheric Aerosols, Model 20, $\lambda=0.55\mu$	128
E4.	Normalized Phase Matrix for Stratospheric Aerosols, Model 20, $\lambda=0.70\mu$	129
E5.	Normalized Phase Matrix for Stratospheric Aerosols, Model 20, $\lambda=0.85\mu$	130
E6.	Normalized Phase Matrix for Aitken Particles, Model 30, $\lambda=0.41\mu$	131
E7.	Normalized Phase Matrix for Aitken Particles, Model 30, $\lambda=0.50\mu$	132
E8.	Normalized Phase Matrix for Aitken Particles, Model 30, $\lambda=0.55\mu$	133
E9.	Normalized Phase Matrix for Aitken Particles, Model 30, $\lambda=0.70\mu$	134
E10.	Normalized Phase Matrix for Aitken Particles, Model 30, $\lambda=0.85\mu$	135
F1.	Normalized Phase Matrix for Fog, Model 1, $\lambda=0.40\mu$	137
F2.	Normalized Phase Matrix for Fog, Model 1, $\lambda=0.6943\mu$	138
F3.	Normalized Phase Matrix for Fog, Model 1, $\lambda=0.80\mu$	139
F4.	Normalized Phase Matrix for Fog, Model 2, $\lambda=0.40\mu$	140

# LIST OF TABLES (Continued)

		<u>Page</u>
F5.	Normalized Phase Matrix for Fog, Model 2, $\lambda=0.6943\mu$	141
F6.	Normalized Phase Matrix for Fog, Model 2, $\lambda=0.80\mu$	142
F7.	Normalized Phase Matrix for Fog, Model 3, $\lambda=0.40\mu$	143
F8.	Normalized Phase Matrix for Fog, Model 3, $\lambda=0.6943\mu$	144
F9.	Normalized Phase Matrix for Fog, Model 3, $\lambda=0.80\mu$	145
F10.	Normalized Phase Matrix for Fog, Model 4, $\lambda=0.40\mu$	146
F11.	Normalized Phase Matrix for Fog, Model 4, $\lambda=0.6943\mu$	147
F12.	Normalized Phase Matrix for Fog, Model 4, $\lambda=0.80\mu$	148

## I. INTRODUCTION

Light transport in the atmosphere is remarkably influenced by aerosol particles. The optical effects of aerosols depend upon their physical structure, their chemical composition (index of refraction), their size distribution and concentration. The dependence of the sky intensity and its degree of polarization on turbidity and the size distribution of aerosol particles has been shown by numerous authors, Refs. 1 and 2 are excellent examples.

The interaction of light with aerosols may be computed by Mie theory if one considers the aerosols as spherical particles. Although this may not be true for a single particle, it may be assumed that the aerosol particles are randomly distributed; the assumption of aerosol particles being spheres is generally accepted. Mie's theory (Ref. 3) originally assumed homogeneous particles and was extended later on to particles of concentric spheres (Refs. 4 and 5) and to particles with the index of refraction varying continuously with the radial distance from the particle center (Ref. 6). The scattering properties of homogeneous aerosols and of particulates consisting of two concentric spheres are of utmost importance for the atmosphere. Currently, there exist four RRA programs that compute scattering data for spherical particles. These programs, designated as MIE-2, MIE-3, MIE-4, and MIE-5, compute cross sections and angular scattering data for homogeneous particles and "two-layer particles" consisting of a spherical kernel and a spherical shell of different material. All four versions of the Mie programs allow for integrating microscopic data over a given size distribution. The programs are based on the fundamental theory outlined by MIE (Ref. 3), Deirmendjian (Ref. 7), Aden and Kerker (Ref. 4) and Penn and Oser (Ref. 8). A detailed description of the codes is given in Ref. 9. In addition to these four programs, a new program, designated as MIE-6, has been

written in order to compute scattering functions by combining the scattering functions for different size distributions and for different indices of refraction.

Sample calculations with these programs are given in this report for inhomogeneous particles (Sections II and III), aerosol size distribution in the troposphere (Section IV) and stratosphere (Section V), and fog particles (Section VI).

## II. EFFICIENCY FACTORS FOR HOMOGENEOUS AND INHOMOGENEOUS PARTICLES

The MIE-5 program was used for calculations of the efficiency factors (see Ref. 9 for definition) for particles of different physical and chemical composition. The results are presented in Figs. 1 through 10 as function of the size parameter,  $x = 2\pi r/\lambda$ , where  $r$  is the particle radius and  $\lambda$  the wavelength of the radiation incident on the particle. In the graphs, the indices of refraction of the inner material (kernel) of the particles are designated by MI and the refractive indices of the shell material by MS.

Some of the indices of refraction chosen for the computations are based upon wavelength-dependent measurements of the real and imaginary part of the refractive index for aerosol particles taken by Hänel (Ref. 10) and Fischer (Ref. 11). The index of refraction for "average aerosol in summer 1966 of Mainz, Germany" is given in Ref. 12 as  $1.68 - 0.040i$  for  $0.3\mu$  wavelength light and as  $1.61 - 0.072i$  for  $\lambda = 1.0\mu$ . Figure 1 shows the well-known shape of the curves giving the efficiency factors of homogeneous particles as function of the size parameter (see Ref. 13, for example) with peak values of the efficiency factors for extinction occurring for size parameters between 1 and 10 and with a limiting value of 2 for large particles. In the example given, the efficiency factor for absorption peaks at  $x \approx 20$  for  $m = 1.68 - 0.04i$  and  $\lambda = 0.3\mu$  and at  $x \approx 7$  for  $m = 1.61 - 0.072i$  and  $\lambda = 1.0\mu$  where the peak values are slightly higher than 1. The refractive indices used for the computations given in Fig. 1 are for dry aerosol. In order to describe realistic conditions, the growth of the aerosol particles with the relative humidity and the related changes of the index of refraction are of special interest. The ratio of the particle radius at a given humidity  $f$  to that at  $f = 0$  for "Mainz aerosol" is given by Hänel (Ref. 14) to be

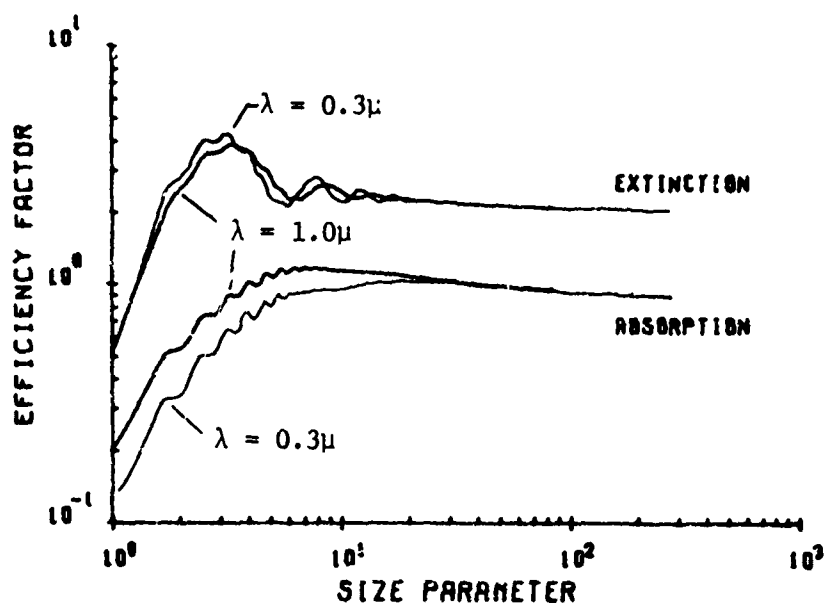


Fig. 1. Efficiency Factors for Dry Aerosols ( $MI = MS = 1.680 - 0.040I$  for  $\lambda = 0.3\mu$  and  $MI = MS = 1.610 - 0.072I$  for  $\lambda = 1.0\mu$ )

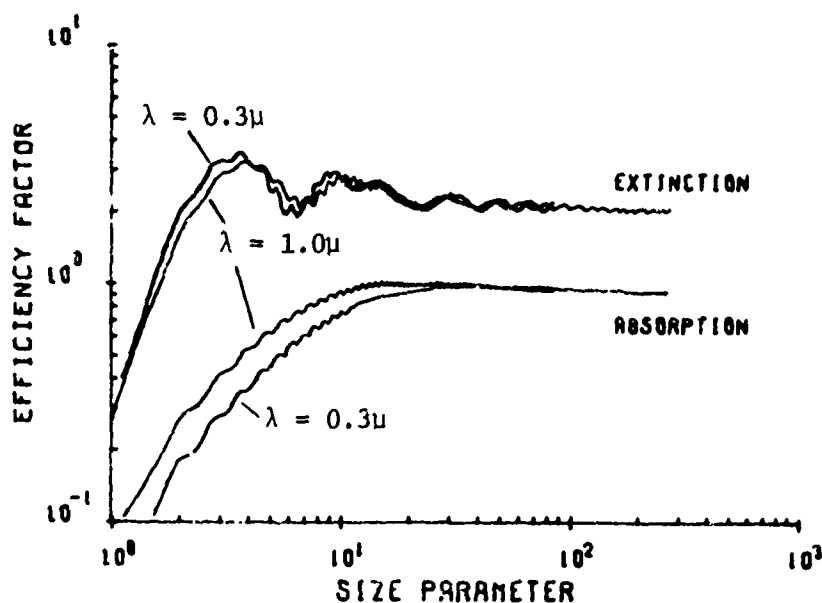


Fig. 2. Efficiency Factors for Inhomogeneous Aerosol Particles at a Relative Humidity of 75% ( $MI = 1.680 - 0.040I$  and  $MS = 1.358 - 0.000I$  for  $\lambda = 0.3\mu$  and  $MI = 1.610 - 0.072I$  and  $MS = 1.324 - 0.000I$  for  $\lambda = 1.0\mu$ )

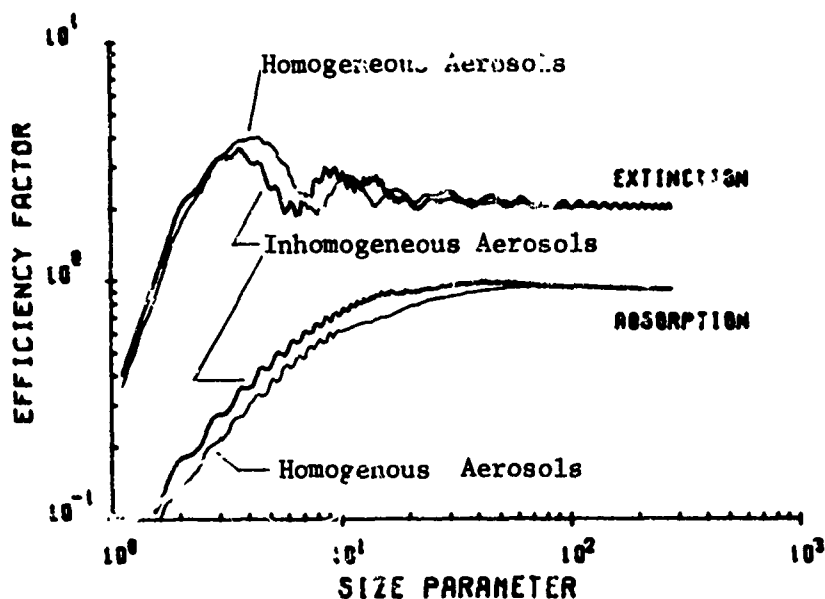


Fig. 3. Efficiency Factors for Homogeneous and Inhomogeneous Aerosol Particles at a Relative Humidity of 75%:  
 $\lambda = 0.3\mu$  ( $MI=MS=1.489 - 0.016I$  for Homogeneous Aerosols and  $MI=1.680 - 0.040I$  and  $MS=1.358 - 0.000I$  for Inhomogeneous Aerosols)

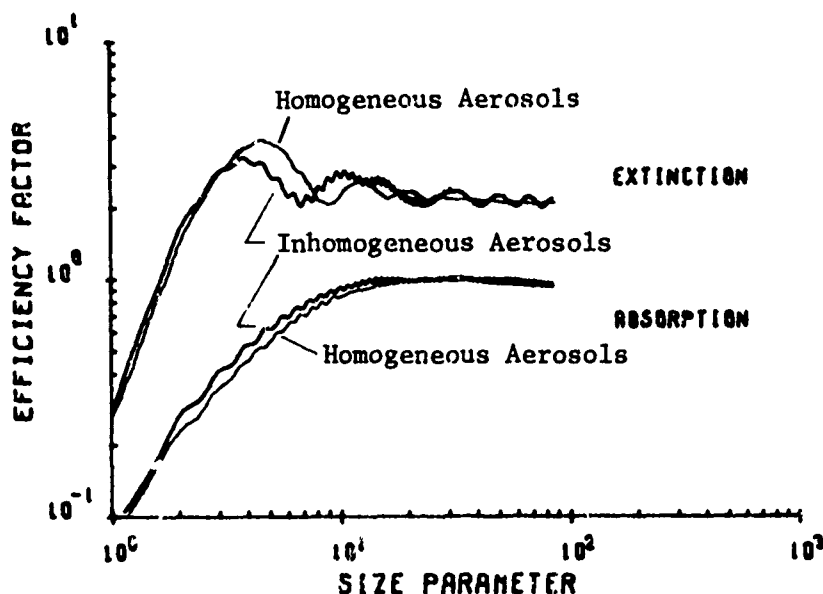


Fig. 4. Efficiency Factors for Homogeneous and Inhomogeneous Aerosol Particles at a Relative Humidity of 75%:  
 $\lambda = 1.0\mu$  ( $MI=MS=1.441 - 0.029I$  for Homogeneous Aerosols and  $MI=1.610 - 0.072I$  and  $MS=1.324 - 0.000I$  for Inhomogeneous Aerosols)

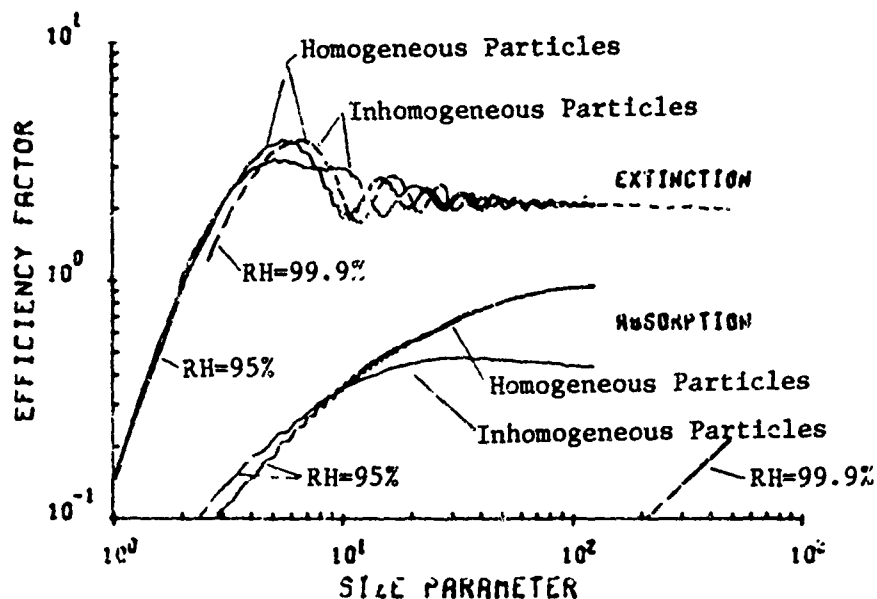


Fig. 5. Efficiency Factors for Aerosols at 95% and 99.9% Relative Humidity:  $\lambda=1.0\mu$  (When RH=95%,  $MI=1.620 - 0.072I$  and  $MS=1.324 - 0.000I$  for Inhomogeneous Particles and  $MI=MS=1.360 - 0.009I$  for Homogeneous Particles. When RH=99.9%,  $MI=1.620 - 0.072I$  and  $MS=1.324 - 0.000I$  for Inhomogeneous Particles and  $MI=MS=1.325 - 0.000I$  for Homogeneous Particles)

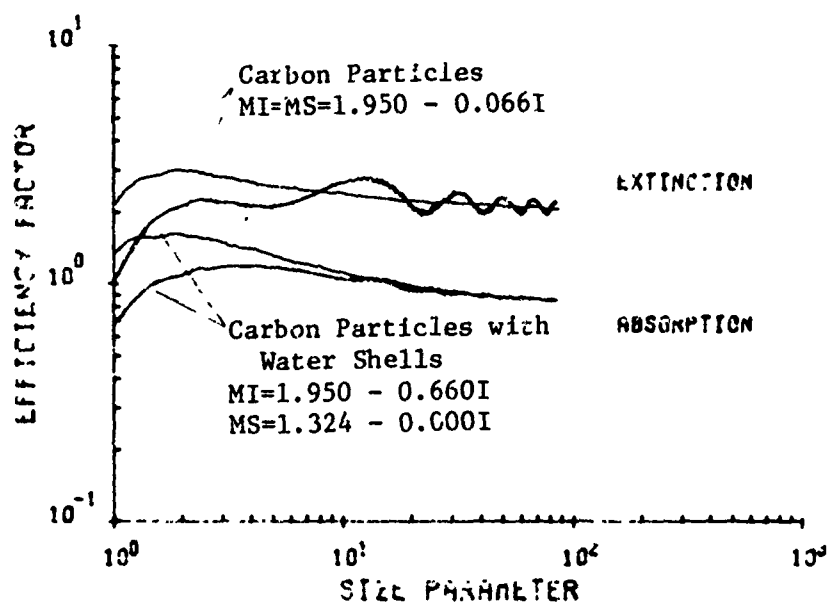


Fig. 6. Efficiency Factors for Carbon Particles With and Without Water Shells:  $\lambda = 1.0\mu$



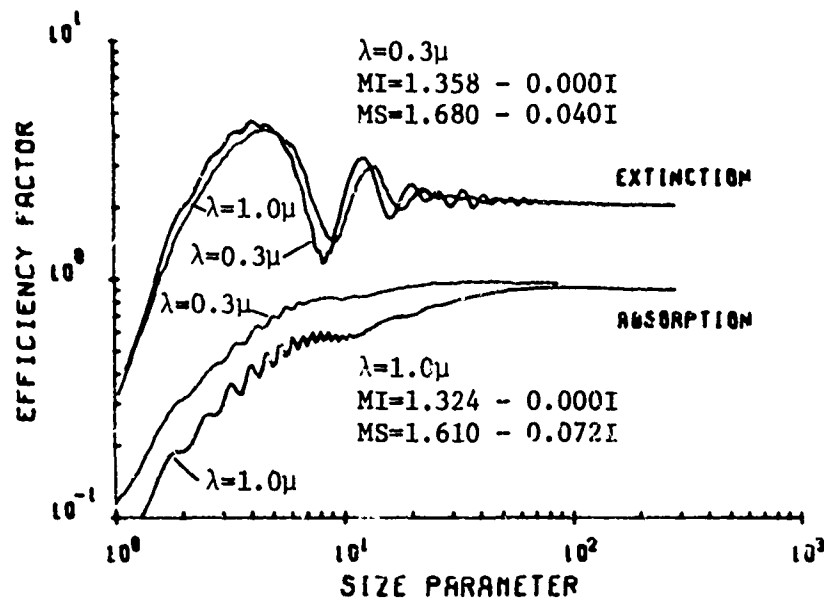


Fig. 7. Efficiency Factors for Water Particles Coated With Material of Higher Refractive Index:  
 $r/r_i = 1.348$

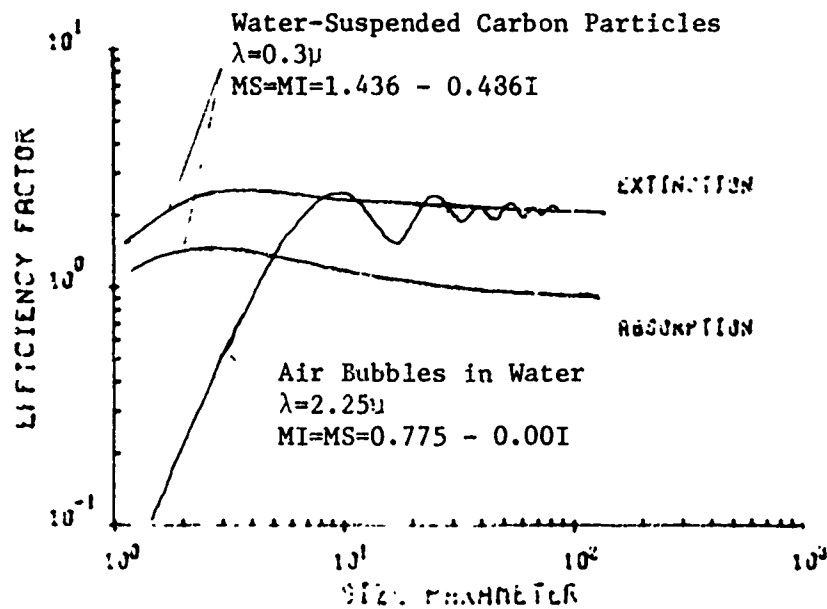


Fig. 8. Efficiency Factors for Air Bubbles in Water and Water-Suspended Carbon Particles

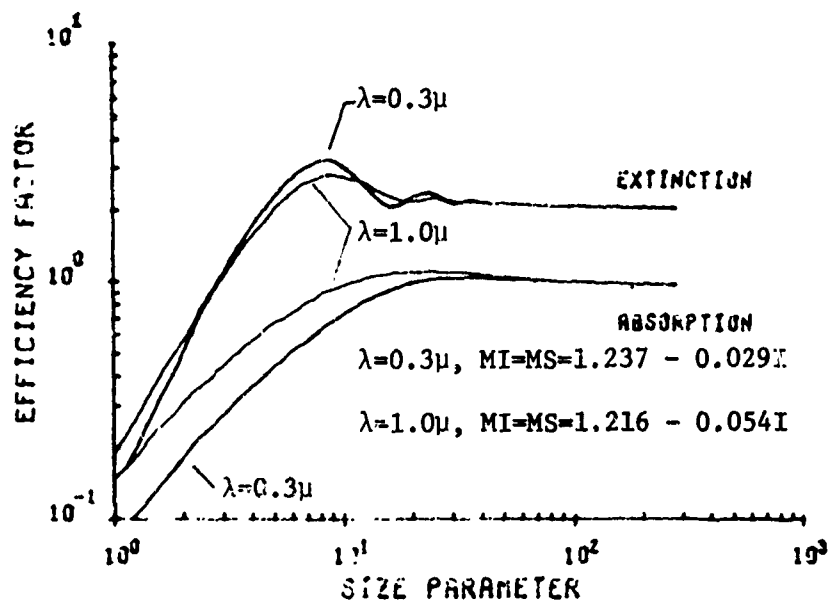


Fig. 9. Efficiency Factors for Hydrosol Particles

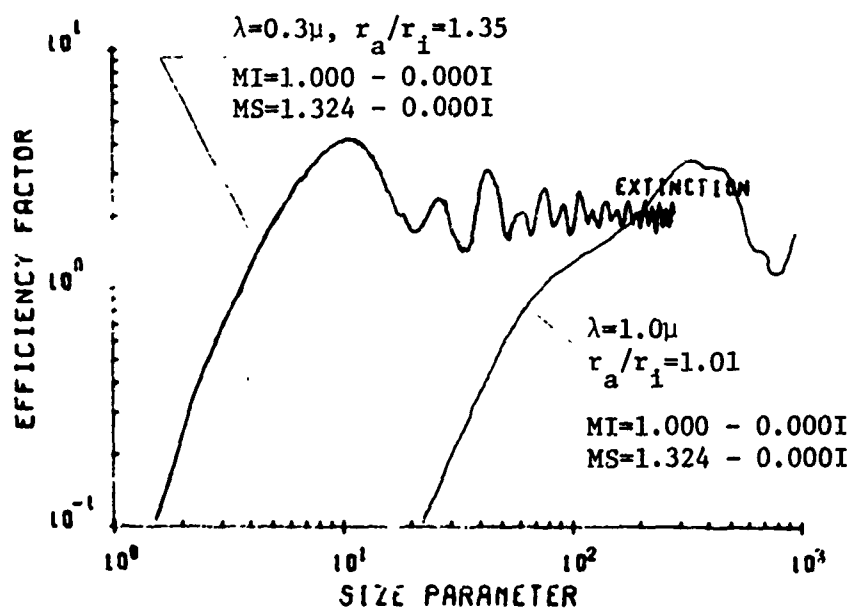


Fig. 10. Efficiency Factors for Water Bubbles

$r(f)/r_0 = 1.348, 2.0$  and  $\sim 8.0$  for relative humidities of  $f = 75\%$ ,  $95\%$ , and  $99.9\%$ , respectively (the ratio  $r(f)/r_0$  is somewhat dependent upon the particle size for high humidities which will not be considered in this study). The average index of refraction at humidity  $f$  is then given by

$$m_f = m_w + (m_o - m_w) \left( \frac{r(f)}{r_0} \right)^{-3}, \quad (1)$$

where  $m_w$  and  $m_o$  denote the indices of refraction for water and dry aerosol. The efficiency factors for "Mainz aerosol" are given in Figs. 2, 3 and 4 for  $f = 75\%$  and in Fig. 5 for relative humidities of  $95\%$  and  $99.9\%$ . For the data shown in Figs. 2, 3, 4 and 5 for inhomogeneous particles, the index of refraction of the kernel was taken as that of the dry aerosol; the shell material was assumed to be water with the ratio of the particle size to the size of the kernel chosen as  $r(f)/r_0$ . The data shown in Figs. 2, 3, 4 and 5 for homogeneous particles were computed using the average index of refraction given by Eq. (1). For  $f = 75\%$ , differences in the calculations are seen mainly for size parameters smaller than  $\sim 30$  with the efficiency factors for the homogeneous particles being smaller for absorption and larger for extinction than those calculated for the spherical-shell particles. For  $f = 95\%$  (Fig. 5), some differences in the dependency of the efficiency factor for extinction upon the size parameter are seen for all size parameters  $x > 3$ . Homogeneous particles are seen in Fig. 5 to be more absorbing than shell particles, especially for large particles with the absorption efficiency factors for  $x = 125.66$  calculated to be  $0.95436$  and  $0.43785$  for homogeneous and inhomogeneous particles, respectively. For  $f = 99.9\%$  (Fig. 5), no apparent differences were found between the efficiency factor calculations for both homogeneous and inhomogeneous particles in the entire range  $2.5133 \leq x \leq 113.0973$ .

The efficiency factors for homogeneous carbon particles and for carbon particles surrounded by water shells with the ratio of the maximum and minimum shell radii taken to 1.35 are shown in Fig. 6. The graph shows the well-known smooth curves without the oscillations for the pure carbon particles (see also Ref. 8). The curves shown in Fig. 6 for the shell particles make it apparent that the observed oscillations in the extinction efficiency factor are caused by scattering and not by absorption.

Figure 7 gives the efficiency factors for water particles coated with a material of higher refractive index, with the ratio of the particle to the kernel size taken to 1.348. These data were previously reported in Ref. 15, pp. 90/91, with the indices of refraction erroneously given in reversed order.

For particles suspended in media other than gases, the effective index of refraction is obtained as the ratio of the refractive indices of the particle,  $m_p$ , and of the surrounding medium,  $m_m$ :

$$m_e = m_p / m_m = (\alpha_p - ik_p) / (\alpha_m - ik_m) =$$

$$= \frac{\alpha_p \alpha_m + k_p k_m - i(\alpha_m k_p - \alpha_p k_m)}{\alpha_m^2 + k_m^2} \quad (2)$$

For the case of carbon particles in water and  $0.3\mu$  wavelength light, Eq. (2) leads to

$$m_e = \frac{1.95}{1.358} - \frac{0.66}{1.358} i = 1.436 - 0.486i$$

Examples of the scattering and extinction by such hydrosols are given in Figs. 8 and 9. Figure 8 refers to gas bubbles in water (the refractive index of 0.775 corresponds to a wavelength of approximately  $2.25\mu$ ) and to carbon particles; Fig. 9 to "aerosol particles" in water. The indices of refraction shown in Figs. 8 and 9 are "effective" indices of refraction given by Eq. (2).

Figure 10 shows the application of the MIE-5 program to "water bubbles", i.e. water spheres having gaseous kernel. The ratio of the outer radius to the inner radius was taken to be 1.35 for  $\lambda = 0.3\mu$  and 1.01 for  $\lambda = 1.0\mu$ .

### III. SCATTERING PROPERTIES OF HUMID AEROSOL PARTICLES

The data in Section II revealed differences in the efficiency factors for homogeneous and inhomogeneous particles. In particular, it was found that there are differences in the efficiency factors for aerosol particles consisting of a spherical kernel of water-insoluble material and a spherical water shell and for homogeneous particles assuming an average index of refraction that is calculated by mixing rules. It is of special interest how macroscopic scattering data would compare when calculated with these two methods.

The data given in Figs. 2 and 3, corresponding to a relative humidity of 75%, were integrated over a power-law size distribution,

$$n(r) = 1.0638r^{-4},$$

with the limiting radii taken as  $r_{\min} = 0.05392\mu$  and  $r_{\max} = 13.48\mu$ . For the spherical-shell model the ratio of the outer and inner radii was assumed to be 1.348. The ratio of the mass of the aerosol particle at  $x\%$  relative humidity to the mass at 0.0% relative humidity is given by

$$\frac{m_x}{m_0} = 1 + \frac{\rho_w}{\rho_0} \left[ \left( \frac{r}{r_0} \right)^3 - 1 \right]$$

where  $\rho_w$  and  $\rho_0$  are the densities of water ( $\rho_w \approx 1 \text{ g/cm}^3$ ) and the dry aerosol particles, respectively and  $r/r_0$  is the ratio of the outer to the inner radii of the spherical shell particles. For  $r/r_0 = 1.348$  and a relative humidity of 75%, the mass ratio is given by

$$\frac{m_{75\%}}{m_{0\%}} = 1 + \frac{1.449}{\rho_0}.$$

The density of dry aerosol particles,  $\rho_0$ , is assumed to be  $3.0 \text{ g/cm}^3$  in Ref. 12 (Model 1). For the homogeneous model, Eq. (1) was used to calculate the index of refraction. The computations were made for 5 wavelengths ranging from  $0.3\mu$  to  $1.0\mu$ , the indices of refraction for dry aerosols were taken from Ref. 12 (model 1).

The calculated optical parameters from these calculations are listed in Table I. The tables lists the indices of refraction, the attenuation coefficients ( $\sigma_{\text{EXT}}$ ,  $\sigma_{\text{SCAT}}$ , and  $\sigma_{\text{ABS}}$  denote the extinction, scattering, and absorption coefficients, respectively), the single scattering albedo, the average cosine of the scattering angle,  $\overline{\cos\theta}$ , and the maximum value of the degree of polarization,  $P_{\text{max}}$ . As expected from the results presented in Figs. 2 and 3, the absorption coefficients are higher for the spherical-shell particles when compared with those for the homogeneous particles with an average index of refraction. The scattering coefficients are found to be smaller for the spherical-shell particles. This produced somewhat smaller extinction coefficients and smaller values of the single scattering albedo. With the exception of  $0.3\mu$  wavelength light, the maximum degree of polarization is smaller for the inhomogeneous particles for all wavelengths being considered.

The normalized phase matrices are given for all wavelengths in Tables A1 through A5 for spherical-shell particles and in Tables A6 through A10 for homogeneous particles. The scattering and polarization functions for  $0.3\mu$  and  $1.0\mu$  wavelength light are presented in graphical form in Ref. 15 for a similar problem. It was found in Ref. 15 that larger differences in both computations occur for both the scattering function and the degree of polarization, especially for scattering angles larger than 100 degrees. The effects of inhomogeneity of the shell particles do not appear to be important for scattering angles less than about  $4^\circ$ . The scattering function for the homogeneous particles exceeds those for the shell particles for scattering angles between  $4^\circ$  and  $40^\circ$  by up to 20%. At scattering angles greater than about  $45^\circ$  the scattering function for shell particles exceeds that computed for homogeneous particles.

TABLE I. OPTICAL CONSTANTS FOR AEROSOLS AT 75% RELATIVE HUMIDITY

$$n(r) = 1.0638r^{-4}$$

$\lambda$	Particle Type	$m_k$	$m_s$	$\sigma_{EXT}$ ( $cm^{-1}$ )	$\sigma_{SCAT}$ ( $cm^{-1}$ )	$\sigma_{ABS}$ ( $cm^{-1}$ )	SSA	$\frac{\sigma_{SCAT}}{\cos\theta}$	$P_{max}$
0.30 $\mu$	Shell part.*	1.6800-0.0400i	1.3580-0.0000i	1.17563-6	9.90221-7	1.85406-7	.84229	.63421	24.06
	Hom. part.**	1.4895-0.0163i	1.4895-0.0163i	1.19673-6	1.03954-6	1.57197-7	.86865	.70263	21.27
0.40 $\mu$	Shell part.	1.6400-0.0440i	1.3430-0.0000i	8.82591-7	7.31889-7	1.50702-7	.82925	.63022	33.98
	Hom. part.	1.4643-0.0180i	1.4643-0.0180i	8.94836-7	7.63582-7	1.31253-7	.85332	.69784	34.11
0.55 $\mu$	Shell part.	1.6200-0.0490i	1.3340-0.0000i	6.41578-7	5.20276-7	1.21302-7	.81093	.62906	38.84
	Hom. part.	1.4508-0.0208i	1.4508-0.0208i	6.50764-7	5.39715-7	1.11049-7	.82936	.69647	40.71
0.70 $\mu$	Shell part.	1.6100-0.0580i	1.3300-0.0000i	5.04974-7	3.95758-7	1.09217-7	.78372	.63172	41.76
	Hom. part.	1.4443-0.0237i	1.4443-0.0237i	5.12324-7	4.13354-7	9.89699-8	.80682	.69764	43.70
1.00 $\mu$	Shell part.	1.6100-0.0720i	1.3240-0.0000i	3.57611-7	2.65637-7	9.19741-8	.74281	.63268	44.55
	Hom. part.	1.4408-0.0294i	1.4408-0.0294i	3.63869-7	2.78765-7	8.51038-8	.76611	.69931	46.77

\* Shell particle with outer radius/inter radius = 1.348

\*\* Homogeneous particle, index of refraction computed with Equation (1)



Figure 11 presents plots of the ellipticity,  $\tan\beta$ , as function of the scattering angle. For the data in Fig. 11 it was assumed that the radiation incident on the particles is linearly polarized with the plane of polarization inclined to the reference plane by  $45^\circ$ . The ellipticity, which is dependent on the four elements of the phase matrix, is given by the equation

$$\tan\beta = \frac{-i_4}{\sqrt{0.25(i_1-i_2)^2 + i_3^2 + i_4^2} + \sqrt{0.25(i_1-i_2)^2 + i_3^2}} \quad (3)$$

It was found that the ellipticity is more sensitive to the homogeneity of the particles than are the scattering function and the degree of polarization (Ref. 15). The data in Fig. 11 show a shift of the peak value of the ellipticity for  $0.3\mu$  wavelength light from  $122^\circ$  to  $160^\circ$  scattering angle when two-layer particles are assumed.

The data presented in Sections II and III show large differences in the scattering properties, especially in the polarization features, for "Mainz aerosol" at a relative humidity of 75% when homogeneous and inhomogeneous particles are assumed. The differences are expected to be even larger for a relative humidity of 95% (see Fig. 5). Since natural aerosols consist of roughly 50% water insoluble material (Refs. 16 and 17, the ratio of water-solubles to water insoluble materials shows large fluctuations and is highly dependent upon the origin of the particles), care has to be taken in interpreting data of the elliptical polarization (Ref. 18). Previous studies of the scattering properties of aerosol particles as function of the relative humidity, such as those reported in Ref. 12, should be extended to consider the scattering properties of water-insoluble materials as well as water solubles.

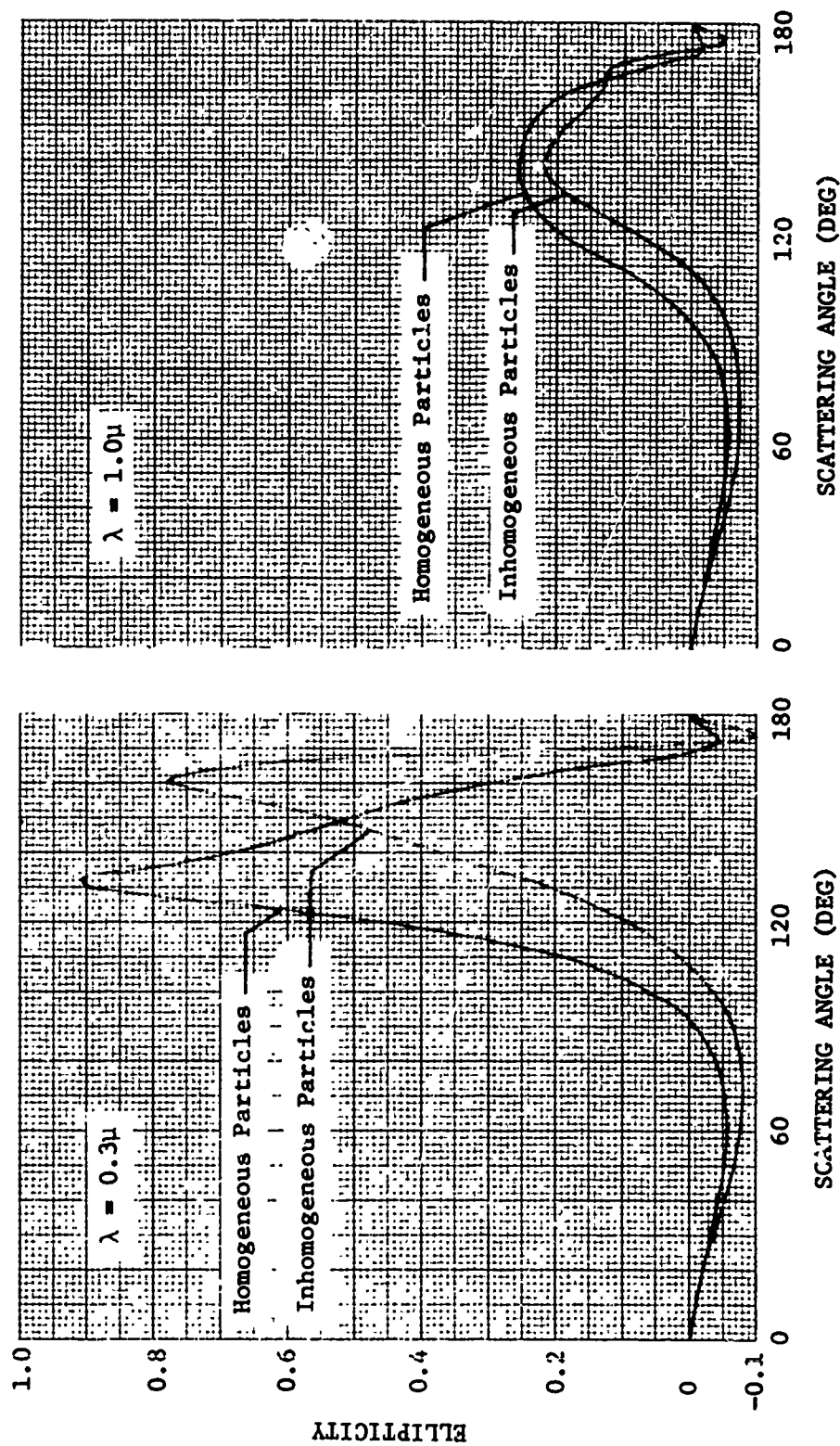


Fig. 11. Ellipticity for Aerosol Particles at 75% Relative Humidity

#### IV. SCATTERING PROPERTIES OF TROPOSPHERIC AEROSOL PARTICLES

The size distribution of continental aerosol particles in the troposphere may be classified into three different scattering types, designated in Ref. 19 as types A, B, and C. According to Ref. 19, different scattering types result mainly from different size distributions of the aerosol particles in the region  $0.15\mu < r < 0.60\mu$ , where  $r$  is the particle radius. Size distributions of scattering types A, B, and C are obtained through a concave, linear, and convex shape of the particle size distribution (on double logarithmic scale), resulting generally in a concave, linear and convex shape of the curve giving the relation between extinction coefficient and wavelength, and also resulting in increasing, constant, and decreasing values of the scattered intensity ratios,  $I(\text{red})/I(\text{blue})$ , for decreasing scattering angles in the range from  $50^\circ$  to  $10^\circ$ . Data are given in this section for the angular scattering of aerosol particles having different size distributions. Though listed under a specific scattering type, some of the size distributions used are transitions between different scattering types (type AB, etc.).

##### 4.1 Scattering Functions for Type B Aerosols

Type B aerosols are described by power-law size distributions. Scattering functions for aerosols with power-law size distributions are published by numerous authors, see for example Ref. 20. Most of these data, however, are obtained assuming that the absorption of light by aerosol particles may be neglected, an assumption which, according to earlier mentioned measurements by Fischer (Ref. 11), is very doubtful. Some model calculations were therefore accomplished for type B aerosol and indices of refraction of  $1.50 - 0.01i$  and  $1.55 - 0.01i$  (similar refractive indices are obtained for models 5 and 6 in Ref. 12 for relative humidities of  $f \approx 50\%$ ).

For the calculations, the parameter  $\nu$  in the size distribution

$$\frac{dN}{dr} = c \cdot r^{-\nu} \quad (4)$$

was taken as 4.0, 4.5, and 5.0. The parameter  $c$  was taken such that the particle number was constant for each size distribution at a particle radius of 0.55 micron. The lower limit of the particle radii was varied between 0.01 $\mu$  and 0.12 $\mu$ , the upper limit was taken to 10 $\mu$  or 20 $\mu$ . The total number of particles per unit volume is given by

$$N = c \int_{r_{\min}}^{r_{\max}} r^{-\nu} dr = \frac{c}{\nu-1} \left[ r_{\min}^{(-\nu+1)} - r_{\max}^{(-\nu+1)} \right] \quad (5)$$

A complete description of the models used is given in Table II. Values of the attenuation coefficients, as obtained from the MIE-2 program, are listed in Table III; the corresponding scattering functions are tabulated in Tables B1 through B28.

The scattering functions listed in Tables B1 through B28 were used to calculate the sky radiance in the solar almucantar for each of the models being considered; the computations were performed with the FLASH and BRITE Monte Carlo Programs (Ref. 15). The aerosol optical thickness was chosen such that the optical thickness would equal 0.23 for the size distribution with  $\nu = 4.5$ ,  $r_{\min} = 0.06\mu$  and for 0.55 $\mu$  wavelength light. The aerosol optical thickness for other models and wavelengths is then given by multiplying 0.23 with the ratio of the extinction coefficient for that model and the one for 0.55 $\mu$ ,  $\nu = 4.5$  and  $r_{\min} = 0.06\mu$ . The atmosphere was assumed to be homogeneous, the angle of incidence was taken to be 70°. The receiver azimuth angle,  $\alpha$ , is then related to the scattering angle,  $\phi$ , through

TABLE II. SIZE DISTRIBUTIONS FOR TYPE B AEROSOL MODELS

Model Number	Wavelength ( $\mu$ )	Index of Refraction	Size Distribution					Table Number
			$r_{\min}$ ( $\mu$ )	$r_{\max}$ ( $\mu$ )	$\nu$	c	N ( $\text{cm}^{-3}$ )	
30402	0.30	1.50-0.01	0.06	10.0	4.0	7.688-4	1.187	B1
45402	0.45	1.50-0.01	0.06	10.0	4.0	7.688-4	1.187	B2
70402	0.70	1.50-0.01	0.06	10.0	4.0	7.688-4	1.187	B3
160402	1.60	1.50-0.01	0.06	10.0	4.0	7.688-4	1.187	B4
30451	0.30	1.50-0.01	0.01	10.0	4.5	5.714-4	10.62+3	B5
45451	0.45	1.50-0.01	0.01	10.0	4.5	5.714-4	10.62+3	B6
70451	0.70	1.50-0.01	0.01	10.0	4.5	5.714-4	10.62+3	B7
160451	1.60	1.50-0.01	0.01	10.0	4.5	5.714-4	10.62+3	B8
30452	0.30	1.50-0.01	0.06	10.0	4.5	5.714-4	8.1926	B9
45452	0.45	1.50-0.01	0.06	10.0	4.5	5.714-4	8.1926	B10
70452	0.70	1.50-0.01	0.06	10.0	4.5	5.714-4	8.1926	B11
160452	1.60	1.50-0.01	0.06	10.0	4.5	5.714-4	8.1926	B12
30453	0.30	1.50-0.01	0.12	10.0	4.5	5.714-4	0.5120	B13
45453	0.45	1.50-0.01	0.12	10.0	4.5	5.714-4	0.5120	B14
70453	0.70	1.50-0.01	0.12	10.0	4.5	5.714-4	0.5120	B15
160453	1.60	1.50-0.01	0.12	10.0	4.5	5.714-4	0.5120	B16
45454	0.45	1.55-0.01	0.06	20.0	4.5	5.714-4	8.1926	B21
55454	0.55	1.55-0.01	0.06	20.0	4.5	5.714-4	8.1926	B22
70454	0.70	1.55-0.01	0.06	20.0	4.5	5.714-4	8.1926	B23
160454	1.60	1.55-0.01	0.06	20.0	4.5	5.714-4	8.1926	B24
30502	0.30	1.50-0.01	0.06	10.0	5.0	4.247-4	3.0858	B17
45502	0.45	1.50-0.01	0.06	10.0	5.0	4.247-4	3.0858	B18
70502	0.70	1.50-0.01	0.06	10.0	5.0	4.247-4	3.0858	B19
160502	1.60	1.50-0.01	0.06	10.0	5.0	4.247-4	3.0858	B20
45504	0.45	1.55-0.01	0.06	20.0	5.0	4.247-4	3.0858	B25
55504	0.55	1.55-0.01	0.06	20.0	5.0	4.247-4	3.0858	B26
70504	0.70	1.55-0.01	0.06	20.0	5.0	4.247-4	3.0858	B27
160504	1.60	1.55-0.01	0.06	20.0	5.0	4.247-4	3.0858	B28

TABLE III. ATTENUATION DATA FOR TYPE B AFROSOLS

$$m = 1.50 - 0.01i$$

$m$	$\nu$	$r_{\min}(\mu)$	$\lambda(\mu)$	$\sigma_{\text{SCAT}}(\text{cm}^{-1})$	$\sigma_{\text{EXT}}(\text{cm}^{-1})$
1.50-0.01i	4.0	0.06	0.30	7.81-10	8.58-10
			0.45	5.52-10	6.07-10
			0.70	3.61-10	3.98-10
			1.60	1.57-10	1.74-10
1.50-0.01i	4.5	0.06	0.30	1.45-09	1.56-09
			0.45	8.75-10	9.44-10
			0.70	4.69-10	5.12-10
			1.60	1.38-10	1.54-10
1.50-0.01i	5.0	0.06	0.30	2.94-09	3.13-09
			0.45	1.54-09	1.65-09
			0.70	6.87-09	7.52-10
			1.60	1.37-10	1.60-10
1.50-0.01i	4.5	0.01	0.30	1.71-09	1.92-09
			0.45	9.29-10	1.06-09
			0.70	4.79-10	5.61-10
			1.60	1.38-10	1.71-10
1.50-0.01i	4.5	0.12	0.30	8.48-10	9.20-10
			0.45	6.83-10	7.34-10
			0.70	4.27-10	4.59-10
			1.60	1.36-10	1.49-10
1.55-0.01i	4.5	0.06	0.45	9.75-10	1.05-09
			0.55	7.41-10	7.98-10
			0.70	5.75-10	5.67-10
			1.60	1.55-10	1.71-10
1.55-0.01i	5.0	0.06	0.45	1.75-09	1.87-09
			0.55	1.23-09	1.32-09
			0.70	7.86-10	8.53-10
			1.60	1.57-10	1.80-10

$$\cos\phi = 0.1170 + 0.8830 \cdot \cos\alpha \quad . \quad (6)$$

Some of the Monte Carlo calculated data have been reported in Ref. 15. Out of all of the models considered, it was found that the model with  $v = 5.0$ ,  $r_{\min} = 0.06\mu\text{m}$  and an index of refraction of  $1.55 - 0.01i$  (model 504) gives the best approximation to observed scattering functions and color ratios for type B aerosol (Ref. 19). The sky scattering functions for this model are plotted in Figs. 12 and 13 for single scattering (SS) and for total scattering assuming ground albedo values of  $A = 0.0$ ,  $0.2$ , and  $1.0$ ; the calculated aerosol scattering function (dotted line; normalized to give the same value as the sky scattering function for  $0.1$  degrees) is given for comparison. As one would expect, the sky scattering function is more affected by molecular and multiple scattering for  $0.45\mu$  wavelength light (Fig. 12) than it is for  $1.60\mu$ . The color ratios,  $I(0.7\mu)/I(0.45\mu)$  and  $I(1.6\mu)/I(0.7\mu)$ , are given in Fig. 14.

Measurements in Europe under visual conditions usually produced by Type B aerosols (Ref. 21) gave results in the near IR that were not in agreement with the Mie calculations described in this report for aerosols with Type B size distributions. More recent measurements in Nova Scotia and Bedford, Massachusetts (Ref. 22) conform to the results presented here for  $\lambda = 1.60\mu\text{m}$ . A very low refractive index or a large influence of a possibly existing small deviation of the size distribution at  $r \geq 1\mu\text{m}$  from the power law had to be assumed to explain the steep IR scattering functions in the European data. More model calculations are required to resolve the problem.

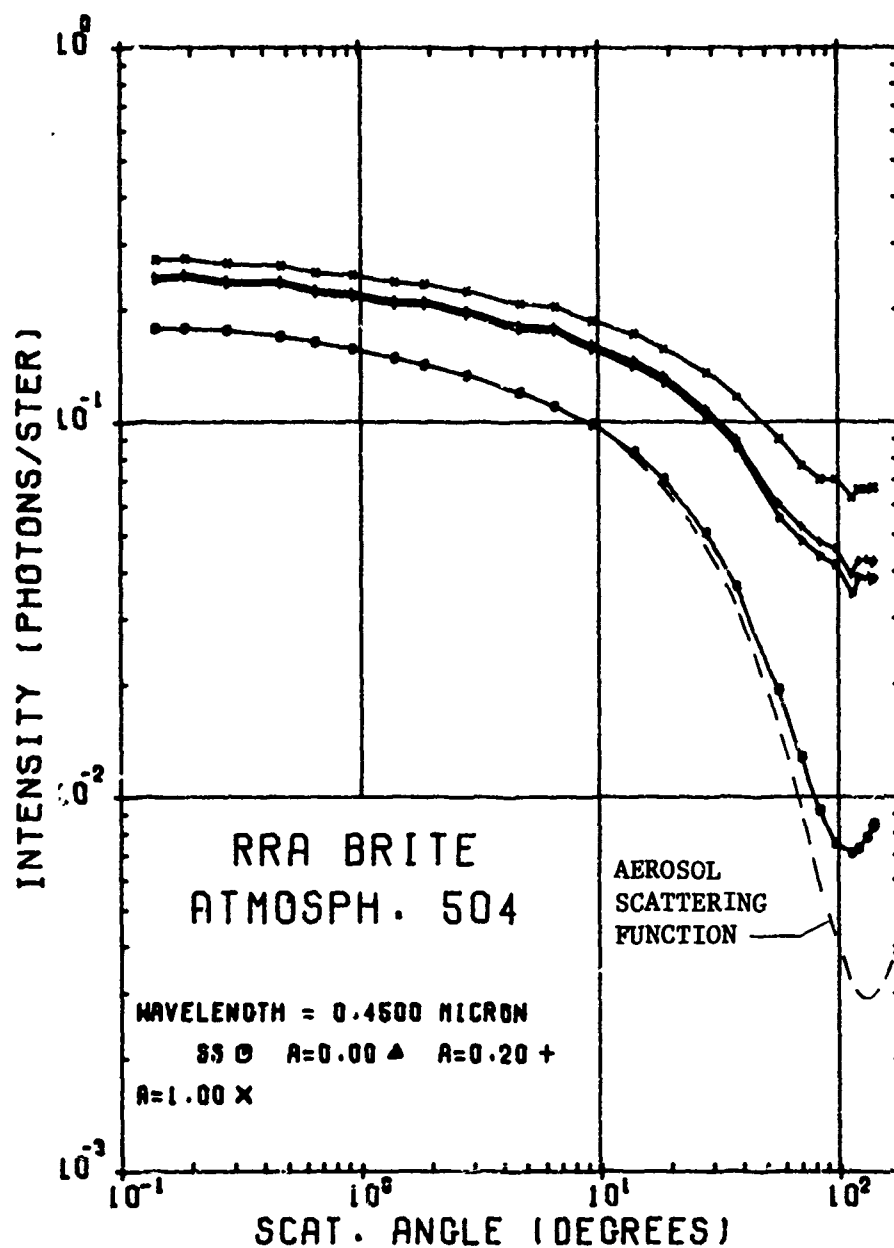


Fig. 12. Sky Scattering Function for  $r^{-5}$  Size Distribution and  $0.45\mu$  Wavelength Light; Index of Refraction =  $1.55 - 0.01i$



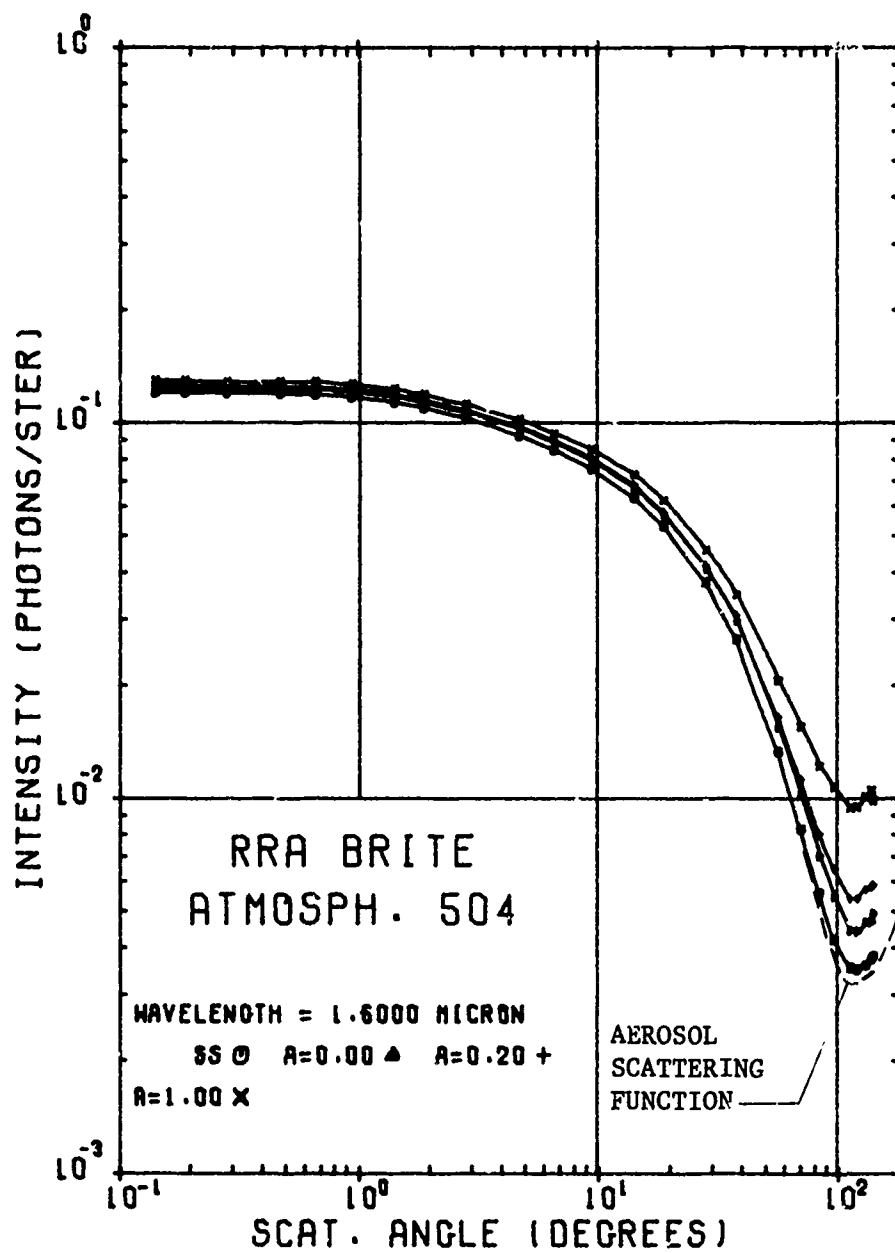


Fig. 13. Sky Scattering Function for  $r^{-5}$  Size Distribution and  $1.60\mu$  Wavelength Light; Index of Refraction =  $1.55 - 0.01i$

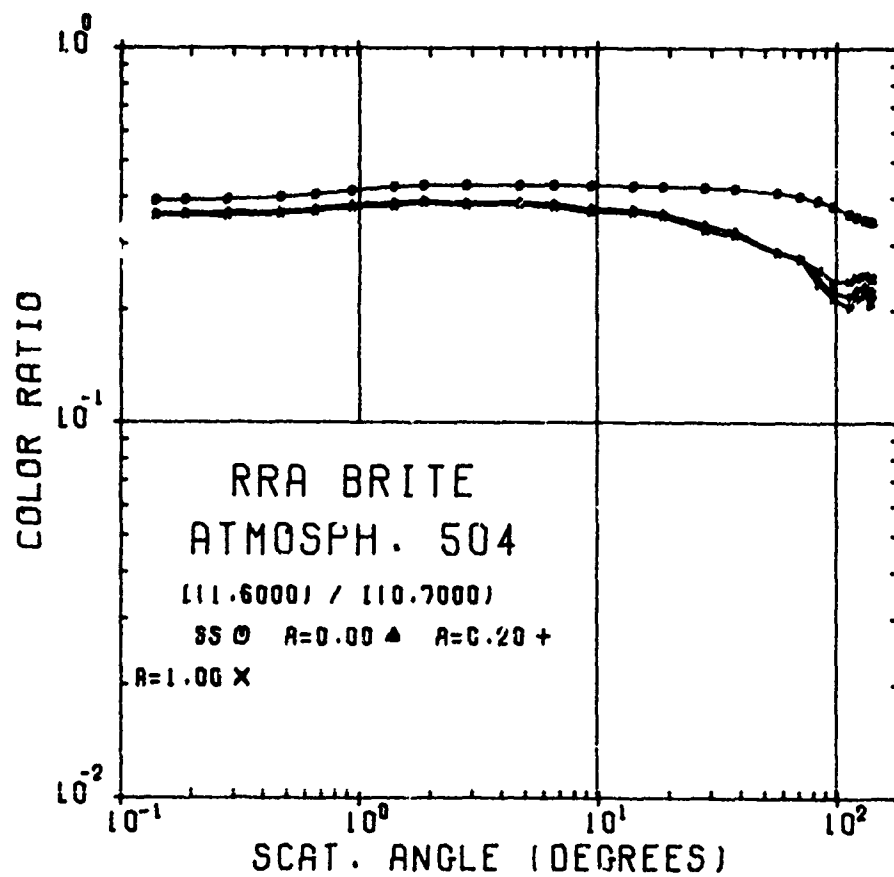
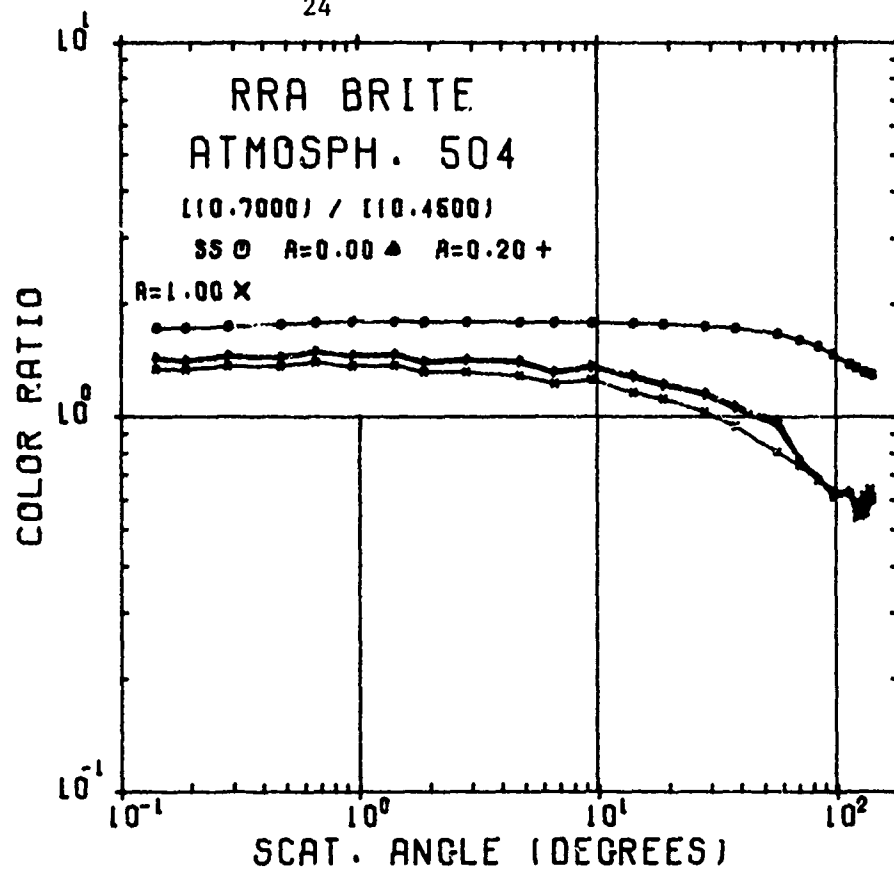


Fig. 14. Color Ratios in the Solar Almucantar for  $r^{-5}$  Size Distribution ( $I(0.7\mu)/I(0.45\mu)$ , upper graph;  $I(1.60\mu)/I(0.7\mu)$ , lower graph)

#### 4.2 Scattering Functions for Type A Aerosols

Three models, denoted as models 200, 500, and 600, have been chosen as examples of the size distributions for aerosol particles of scattering type A. The size distributions used are tabulated in Table IV and plotted in Fig. 15. For the computations, a total of 600 radii was used for the integration over the particle size distribution. Two methods were used to interpolate the number density of a particle of radius  $r$  within the interval  $r_1$  and  $r_2$  (where  $r_1$  and  $r_2$  are the radii given in Table IV). For model 200, the interpolation was done using the formula

$$n(r) = n(r_1) + (n(r_1) - n(r_2)) \frac{\log(r/r_1)}{\log(r_2/r_1)} \quad (7)$$

The number densities for models 500 and 600 were interpolated through

$$n(r) = n(r_1) \cdot \left( \frac{r}{r_1} \right)^\alpha,$$

where

$$\alpha = \frac{\log(n(r_2)/n(r_1))}{\log(r_2/r_1)} \quad (8)$$

The index of refraction for type A aerosols was taken to be  $1.55 - 0.01i$ . Attenuation coefficients for type A aerosol particles as a function of wavelength are given in Table V, the scattering functions are listed in Tables C1 through C12. The scattering functions are plotted in Fig. 16 for all three models and for  $0.7\mu$  wavelength light, the color ratios  $(I(0.7\mu)/I(0.45\mu))$  are given in Fig. 17 (the color ratios were obtained from the normalized phase-functions

TABLE IV. SIZE DISTRIBUTIONS FOR TYPE A AEROSOL MODELS

r [μ]	Model 200	Model 500	Model 600
.06	99.9	102.6	940.3
.07	72.2	74.1	582.5
.08	43.6	44.8	307.8
.09	30.4	31.2	190.6
.1	22.3	22.9	126.1
.15	2.88	2.95	10.8
.2	.640	0.657	1.81
.25	.223	0.229	0.505
.3	.091	0.090	0.171
.4	.025	0.028	3.53-2
.5	.011	0.012	1.23-2
.6	6.20-3	5.69-3	5.84-3
.7	3.93-3	2.75-3	3.17-3
.8	2.70-3	1.60-3	1.91-3
.9	1.97-3	1.01-3	1.23-3
1.	1.42-3	7.16-4	8.04-4
1.5	5.13-3	2.04-4	1.93-4
2.	2.77-3	8.99-5	7.82-5
2.5	1.79-4	4.83-5	4.04-5
3.	1.31-4	3.21-5	2.47-5
4.0	7.79-5	1.43-5	1.10-5
5.	5.09-5	7.71-6	5.75-6
6.	3.59-5	4.83-6	3.38-6
7.	2.66-5	3.21-6	2.15-6
8.	2.15-5	2.29-6	1.51-6
9.	1.79-5	1.84-6	1.12-6
10.	1.43-5	1.40-6	8.07-7
15.	7.22-6	4.00-7	2.72-7
20.	4.92-6	1.50-7	1.39-7

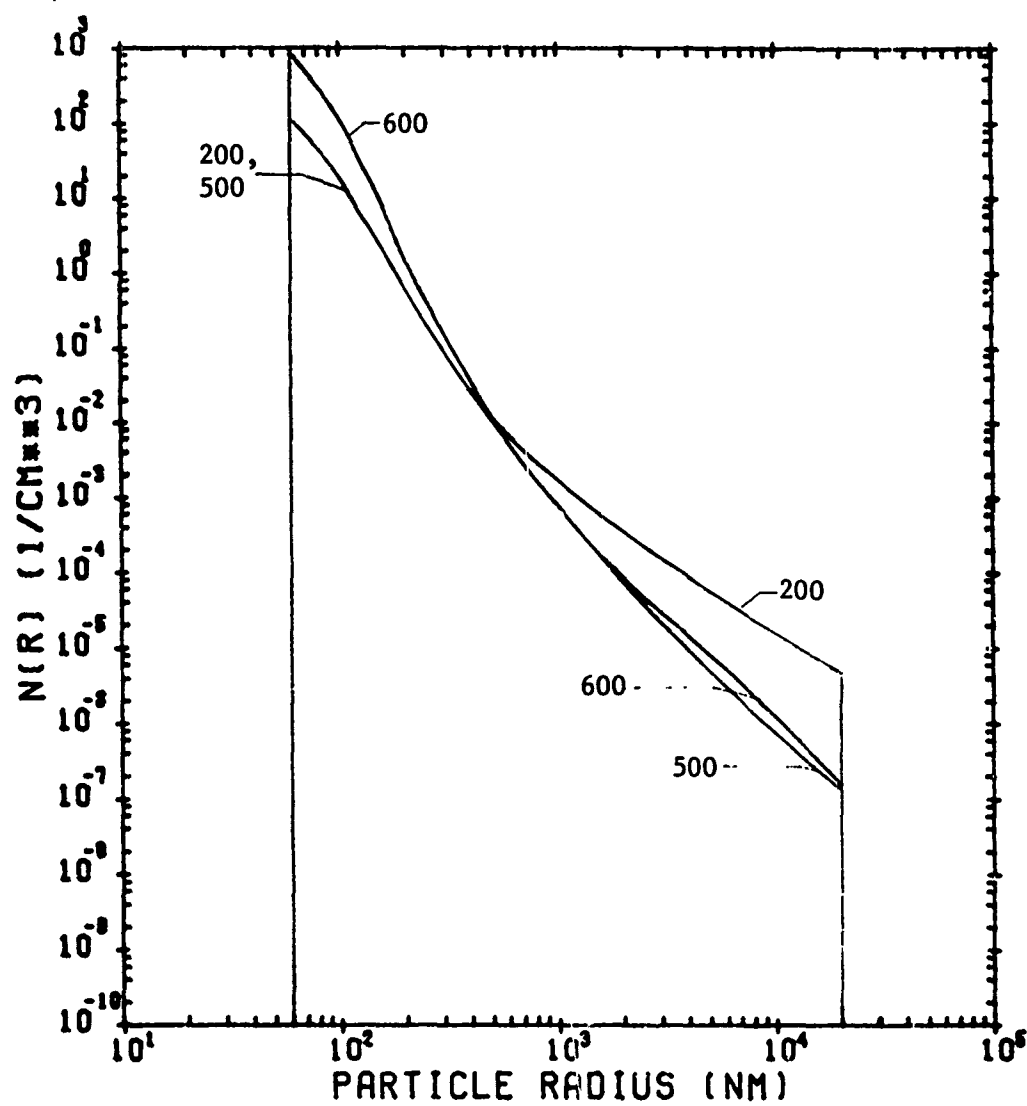


Fig. 15. Model Size Distributions for Type A Aerosols

TABLE V. ATTENUATION DATA FOR TYPE A AEROSOLS\*

$$m = 1.55 - 0.01i$$

MODEL	$\lambda = 0.45\mu$		$\lambda = 0.55\mu$		$\lambda = 0.70\mu$		$\lambda = 1.60\mu$	
	$\sigma_{\text{SCAT}}$	$\sigma_{\text{EXT}}$	$\sigma_{\text{SCAT}}$	$\sigma_{\text{EXT}}$	$\sigma_{\text{SCAT}}$	$\sigma_{\text{EXT}}$	$\sigma_{\text{SCAT}}$	$\sigma_{\text{EXT}}$
200	2.12-9	3.01-9	1.85-9	2.71-9	1.63-9	2.46-9	1.47-9	2.17-9
500	1.00-9	1.14-9	7.70-10	8.93-10	5.70-10	6.78-10	2.77-10	3.47-10
600	3.34-9	3.62-9	2.17-9	2.39-9	1.27-9	1.44-9	2.98-10	3.78-10

\* The scattering coefficients,  $\sigma_{\text{SCAT}}$ , and extinction coefficients,  $\sigma_{\text{EXT}}$ , are given in  $\text{cm}^{-1}$ .

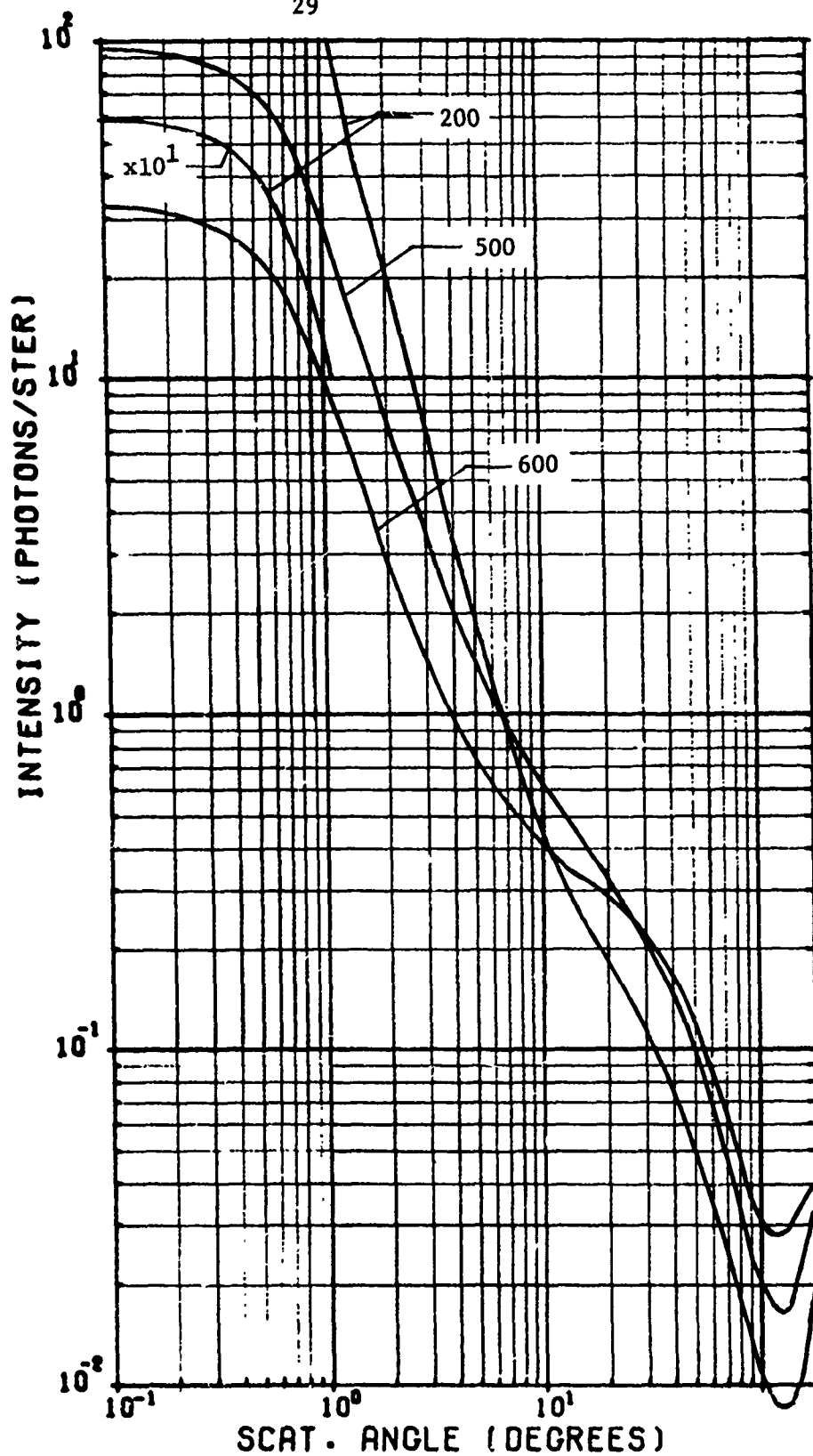


Fig. 16. Normalized Scattering Functions for Type A Aerosols,  
 $\lambda = 0.70\mu$

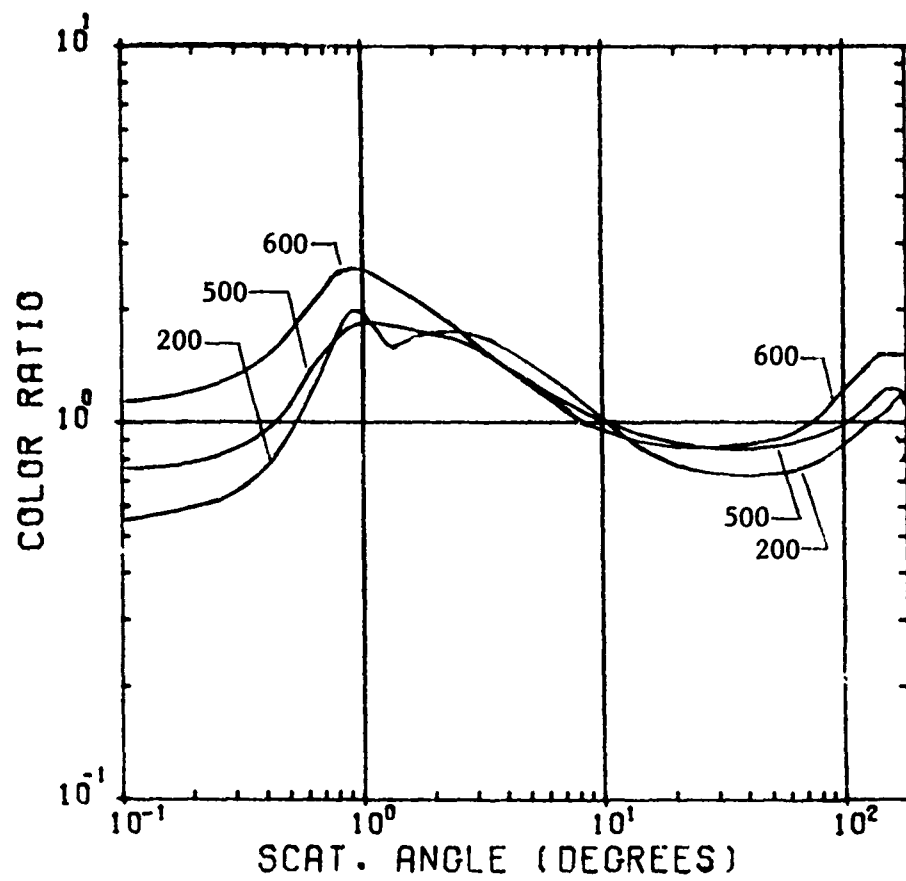


Fig. 17. Color Ratios for Type A Aerosol Size Distributions ( $I(0.7\mu)/I(0.45\mu)$ )



and not from the volume scattering functions). It is seen that the forward scattering is more pronounced for the models that have relatively more large particles. The scattering function is therefore highest for model 200 and lowest for model 600, an opposite effect is observed for the color ratio ( $I(0.7\mu)/I(0.45\mu)$ ) at small scattering angles. The color ratios show peak values at scattering angles of  $\sim 1^\circ$  and  $180^\circ$ ; the ratios are low for scattering angles of  $0^\circ$  and  $\sim 40^\circ$  for all models being considered.

#### 4.3 Scattering Functions for Type C Aerosols

The index of refraction for type C aerosols was taken to be  $1.55 - 0.01i$ . Size distributions for type C aerosol particles are given in Table VI and in Fig. 18 (Eq. 7 was used to interpolate the size distributions for models 100 and 300, resulting in curves that are not as smooth as those shown in Fig. 15). Attenuation data are listed in Table VII, the corresponding scattering functions in Tables D1 through D20.

The normalized scattering functions for  $0.70\mu$  wavelength light are plotted in Fig. 19, and the color ratios ( $I(0.7\mu)/I(0.45\mu)$ ) are given in Fig. 20. Figure 19 shows the high dependency of the magnitude of the forward scattering upon the (relative) number of large particles. All size distributions show a relative maximum of the scattering function at about  $20^\circ$  scattering angle. The scattering functions are almost identical for larger scattering angles. Figure 20 shows that maxima of the color ratios ( $I(0.7\mu)/I(0.45\mu)$ ) occur at scattering angles of  $\sim 1^\circ$  and  $\sim 50^\circ - 60^\circ$ , the second maximum corresponding to the so-called Bishop-ring that is observed for type C aerosol size distributions (Ref. 19).

Model 100 was used for calculating the sky radiances in the solar alumcantar (see also Section 4.1 and Ref. 15). Plots of the sky scattering functions are given in Figs. 21, 22, and 23 for

TABLE VI. SIZE DISTRIBUTIONS FOR TYPE C AEROSOL MODELS

$r$ [ $\mu$ ]	Model 100	Model 300	Model 400	Model 700	Model 800
.06	9.73	9.73	30.0	89.2	89.2
.07	8.07	8.07	26.0	63.4	63.4
.08	6.79	6.79	21.0	46.7	46.7
.09	5.69	5.69	18.0	34.8	34.8
.1	4.83	4.83	16.0	26.6	26.6
.15	2.57	2.57	9.0	9.42	9.42
.2	1.42	1.42	6.0	3.91	3.91
.25	.716	.716	3.5	1.57	1.57
.3	.363	.363	1.0	0.666	0.666
.4	4.86-2	4.86-2	4.90-2	6.66-2	6.66-2
.5	1.34-2	1.34-2	1.34-2	1.47-2	1.47-2
.6	5.69-3	5.69-3	5.69-3	5.22-3	5.22-3
.7	2.75-3	2.75-3	2.75-3	2.16-3	2.16-3
.8	1.60-3	1.60-3	1.40-3	1.10-3	1.10-3
.9	1.01-3	1.01-3	8.00-4	6.17-4	6.17-4
1.	7.16-4	5.00-4	4.50-4	3.94-4	3.94-4
1.5	2.04-4	1.50-4	7.50-5	7.48-5	7.48-5
2.	8.99-5	4.00-5	1.95-5	2.47-5	2.47-5
2.5	4.83-5	1.50-5	9.00-6	1.06-5	1.06-5
3.	3.21-5	7.00-6	4.10-6	5.89-6	5.30-6
4.	1.43-5	2.40-6	1.40-6	1.96-6	1.60-6
5.	7.71-6	1.10-6	5.00-7	8.48-7	7.00-7
6.	4.83-6	5.50-7	2.50-7	4.43-7	3.40-7
7.	3.21-6	2.10-7	1.30-7	2.57-7	1.80-7
9.	2.29-6	1.90-7	6.00-8	1.57-7	1.00-7
9.	1.84-6	1.30-7	3.70-8	1.12-7	6.00-8
10.	1.42-6	1.00-7	2.10-8	8.09-8	3.60-8
15.	4.83-7	1.00-8	3.00-9	1.77-8	4.00-9
20.	2.57-7	2.00-9	7.80-10	7.07-9	9.00-10
25.			2.80-10		2.80-10
30.			1.00-10		1.00-10

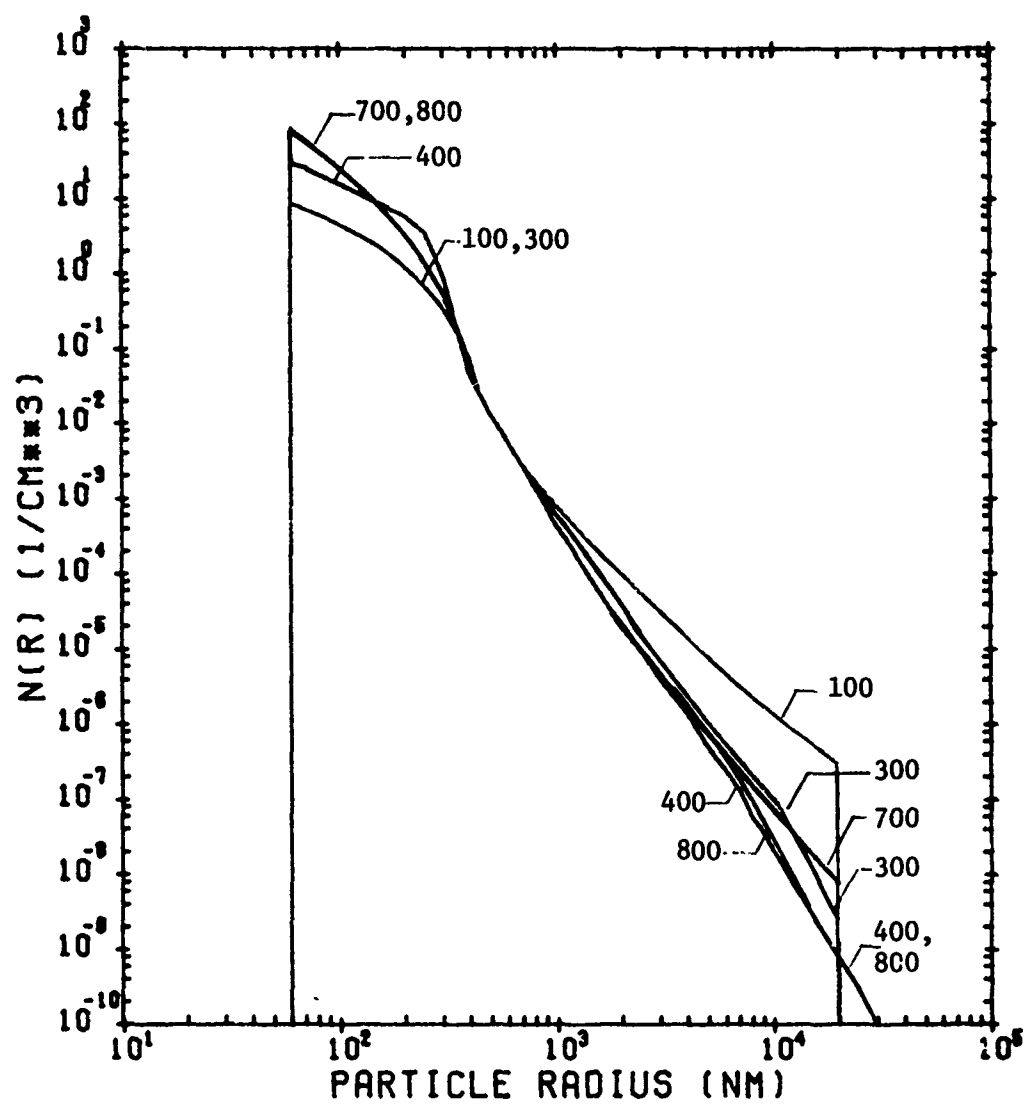


Fig. 18. Model Size Distributions for Type C Aerosols

TABLE VII. ATTENUATION DATA FOR TYPE C AEROSOLS\*  
 $m = 1.55 - 0.01i$

MODEL	$\lambda = 0.45\mu$		$\lambda = 0.55\mu$		$\lambda = 0.70\mu$		$\lambda = 1.60\mu$	
	$\sigma_{\text{SCAT}}$	$\sigma_{\text{EXT}}$	$\sigma_{\text{SCAT}}$	$\sigma_{\text{EXT}}$	$\sigma_{\text{SCAT}}$	$\sigma_{\text{EXT}}$	$\sigma_{\text{SCAT}}$	$\sigma_{\text{EXT}}$
100	1.41-9	1.58-9	1.27-9	1.41-9	1.02-9	1.15-9	3.67-10	4.49-10
300	1.31-9	1.40-9	1.16-9	1.23-9	9.05-10	9.64-10	2.33-10	2.57-10
400	4.14-9	4.35-9	3.39-9	3.56-9	2.36-9	2.48-9	3.33-10	3.72-10
700	3.05-9	3.22-9	2.42-9	2.55-9	1.66-9	1.77-9	2.65-10	2.98-10
800	3.05-9	3.22-9	2.41-9	2.55-9	1.66-9	1.75-9	2.62-10	2.94-10

\* The scattering coefficients,  $\sigma_{\text{SCAT}}$ , and extinction coefficients,  $\sigma_{\text{EXT}}$ , are given in  $\text{cm}^{-1}$ .

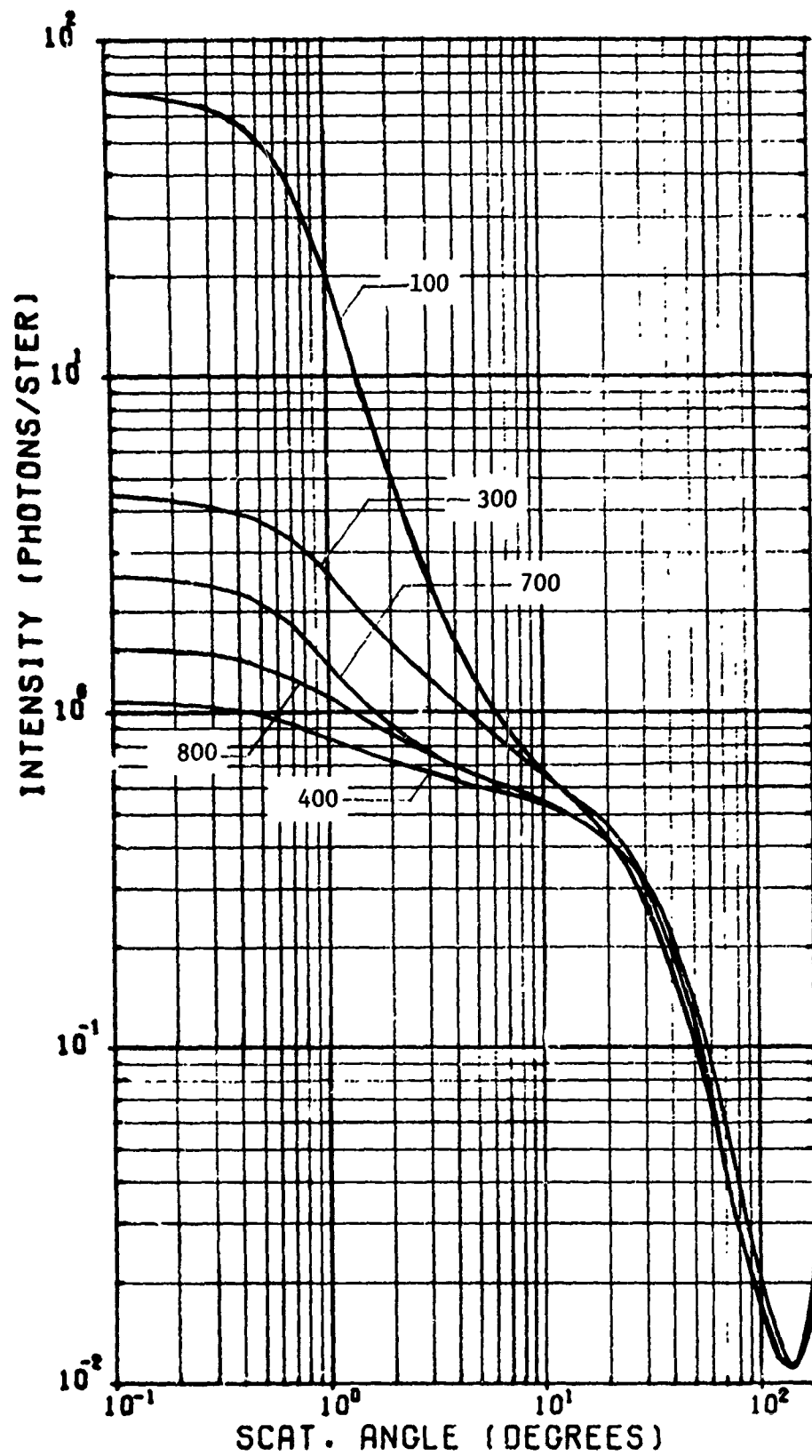


Fig. 19. Normalized Scattering Functions for Type C Aerosols,  
 $\lambda = 0.70\mu$

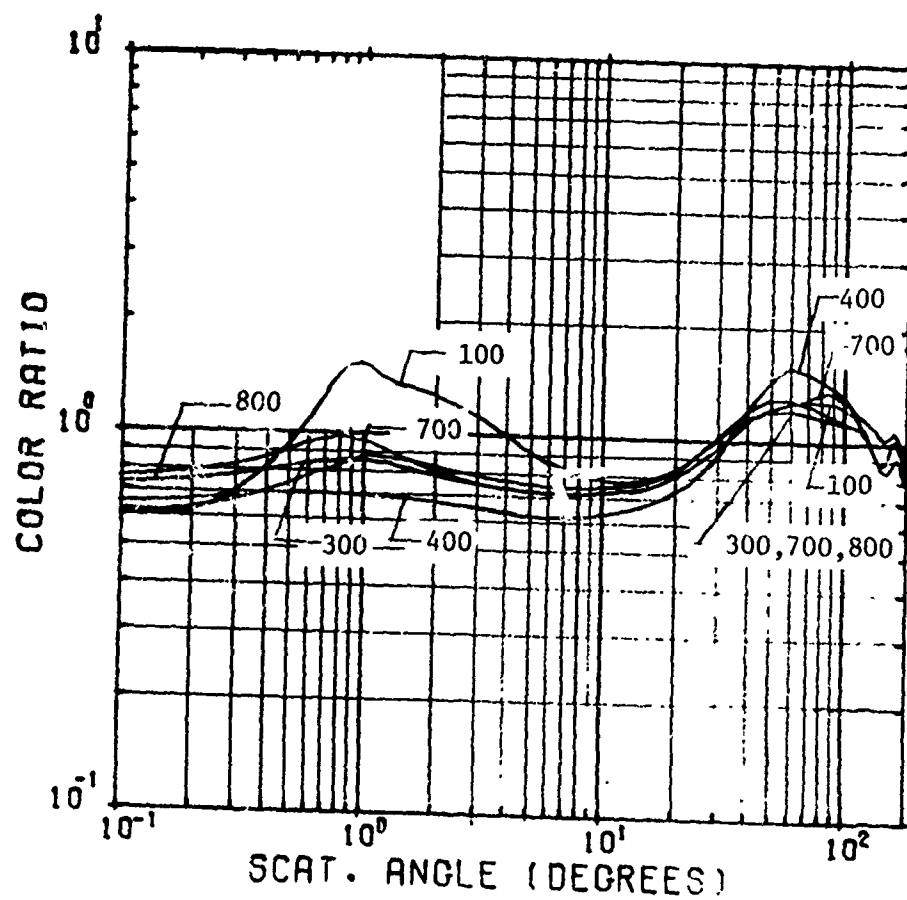


Fig. 20. Color Ratios for Type C Aerosol Size Distributions ( $I(0.7\mu)/I(0.45\mu)$ )

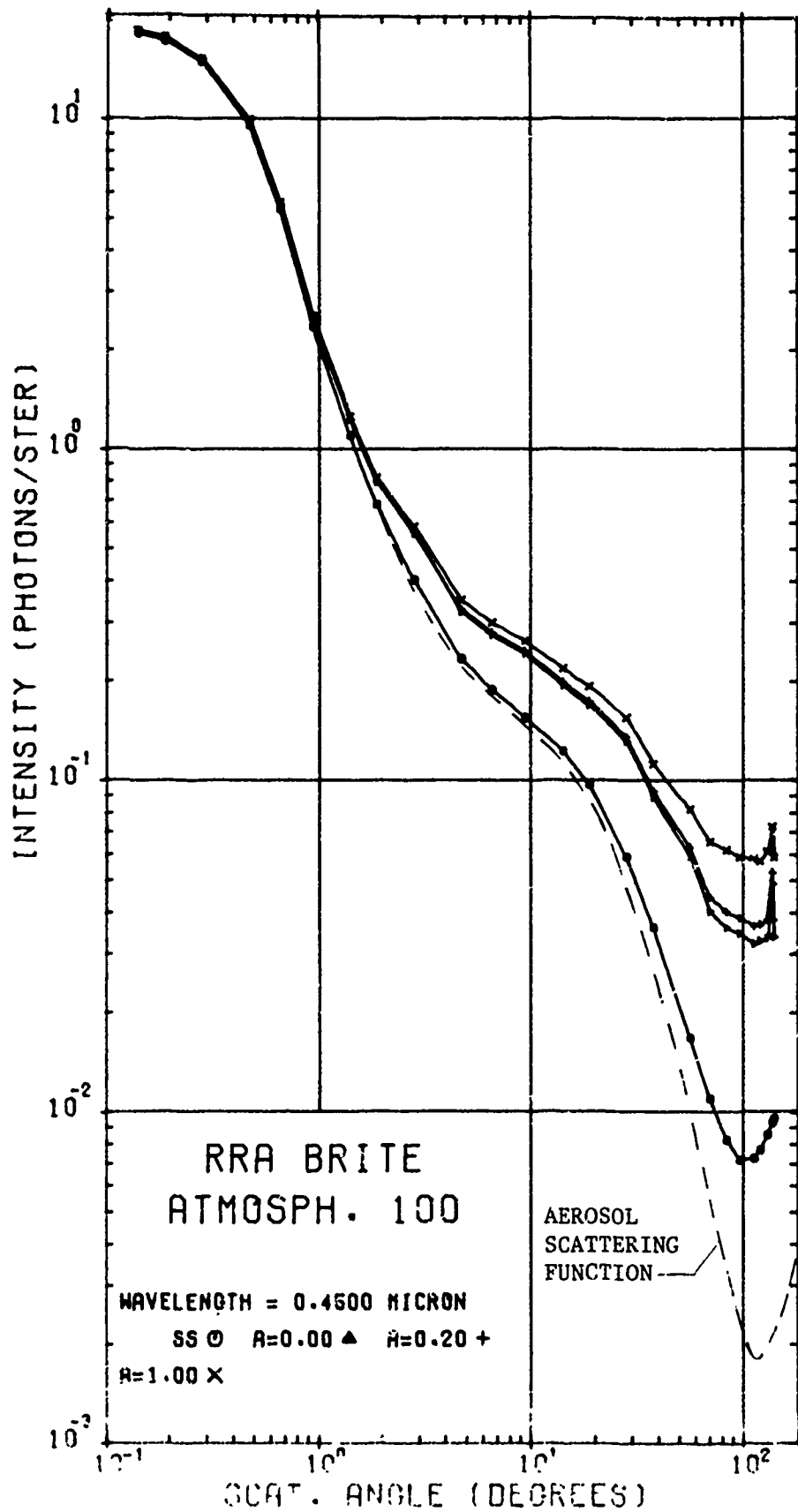


Fig. 21. Sky Scattering Function for Model 100,  
 $\lambda = 0.45\mu$

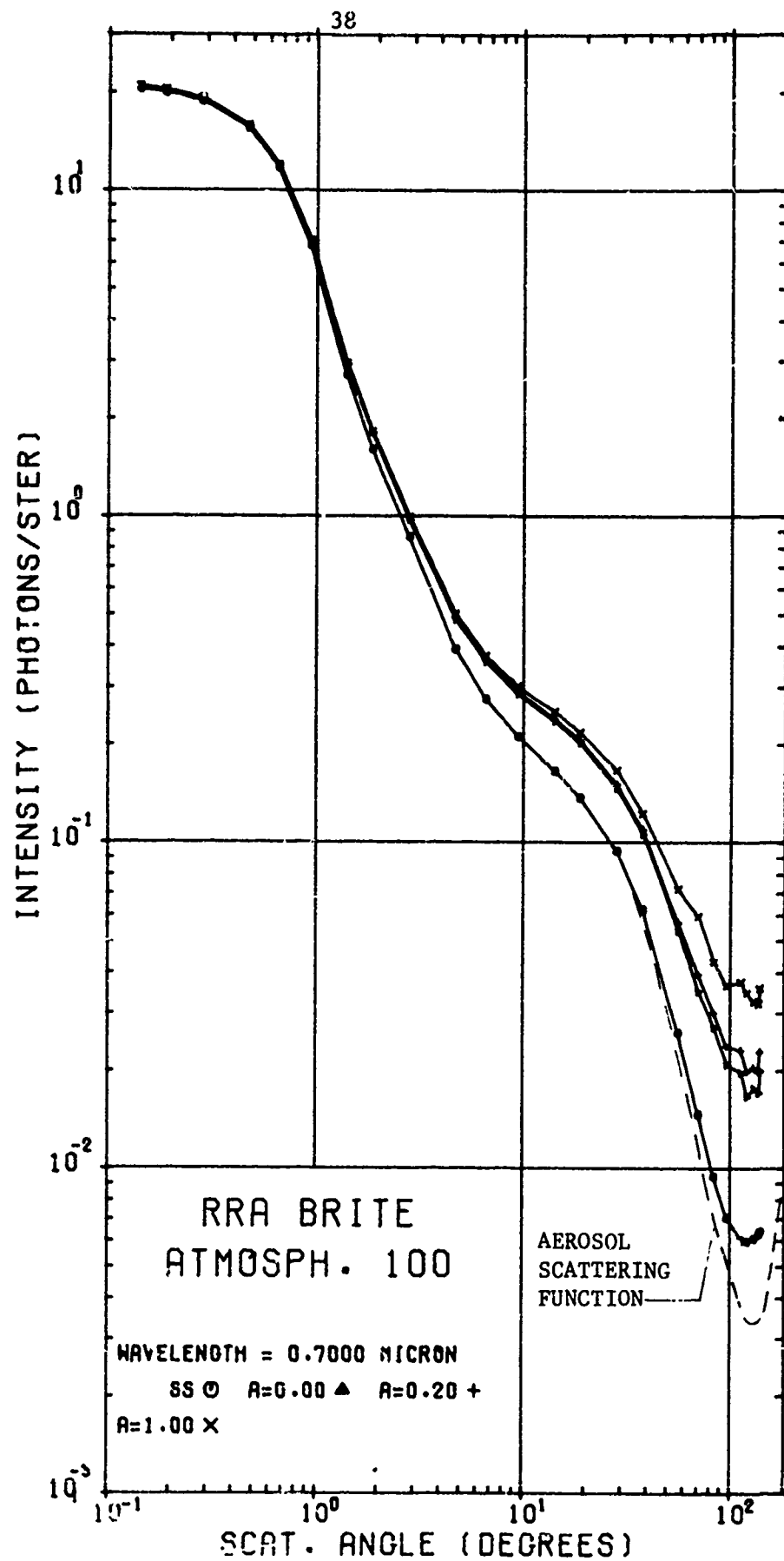


Fig. 22. Sky Scattering Function for Model 100,  
 $\lambda = 0.70\mu$



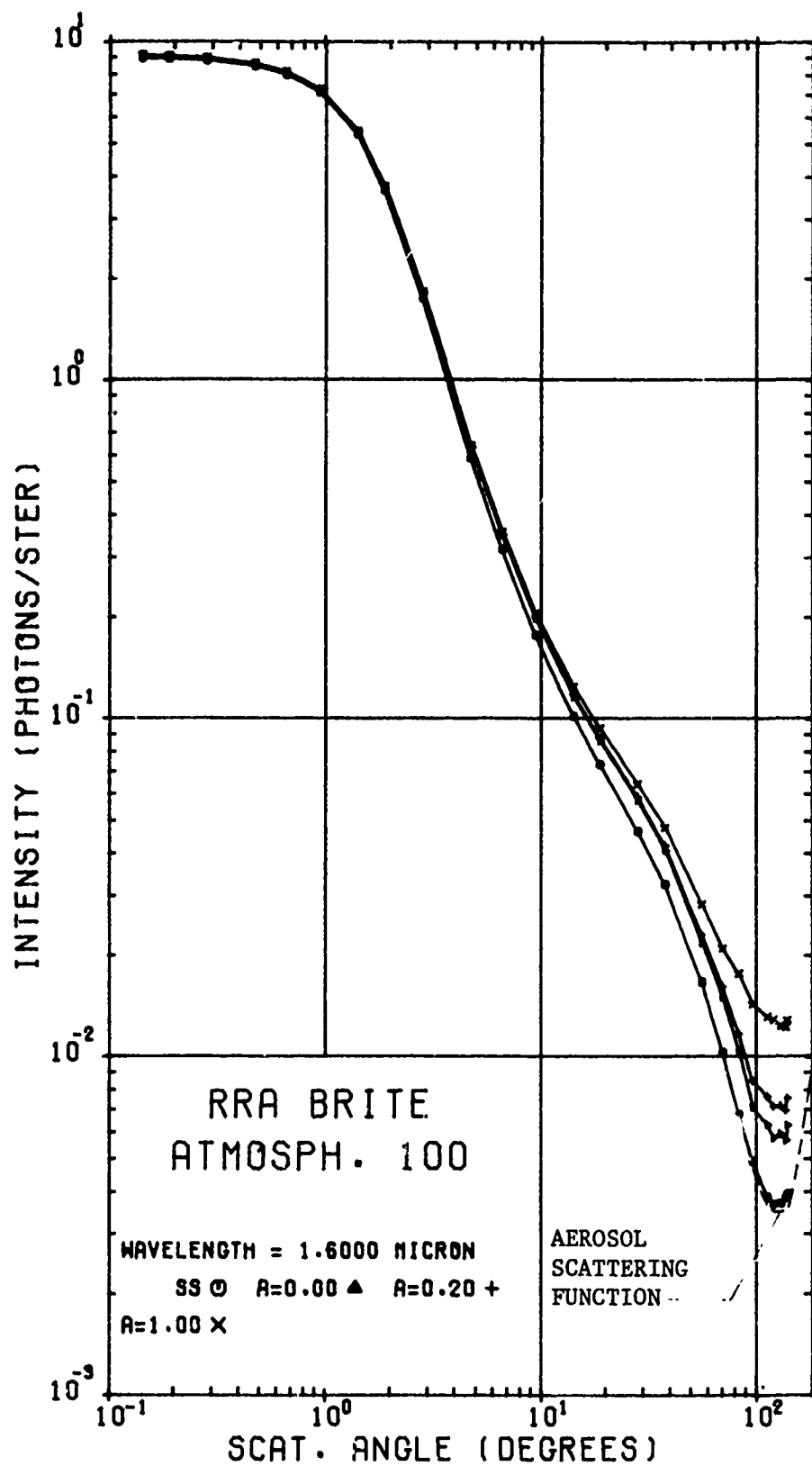


Fig. 23. Sky Scattering Function for Model 100,  $\lambda = 1.60\mu$

$\lambda = 0.45\mu$ ,  $0.70\mu$ , and  $1.60\mu$ , respectively. The corresponding color ratios are given in Fig. 24. Data giving the scattering functions and color ratios as obtained from the MIE data for model 100 are shown in the graphs for comparison (broken lines, normalized to the corresponding single scattering values at  $0.1^\circ$  scattering angle). It is seen that the scattering functions are more affected by molecular and multiple scattering at shorter wavelengths for scattering angles larger than  $\sim 10^\circ$  resulting in a noticeable decrease of the color ratio in the area of the Bishop-ring. The Bishop-ring almost disappears for albedo values  $A \geq 0.2$ . It is seen in Fig. 24 that the color ratios for Model 100 are not significantly dependent on the magnitude of the ground albedo.

A comparison with measured sky scattering functions and color ratios in Ref. 19 reveals that a good approximation of the size distribution for type C aerosols would be obtained by combining models 400 and 700, using model 700 for particle radii  $r > 1\mu$  and increasing the number of particles for model 400 and  $r < \sim 0.4\mu$ .

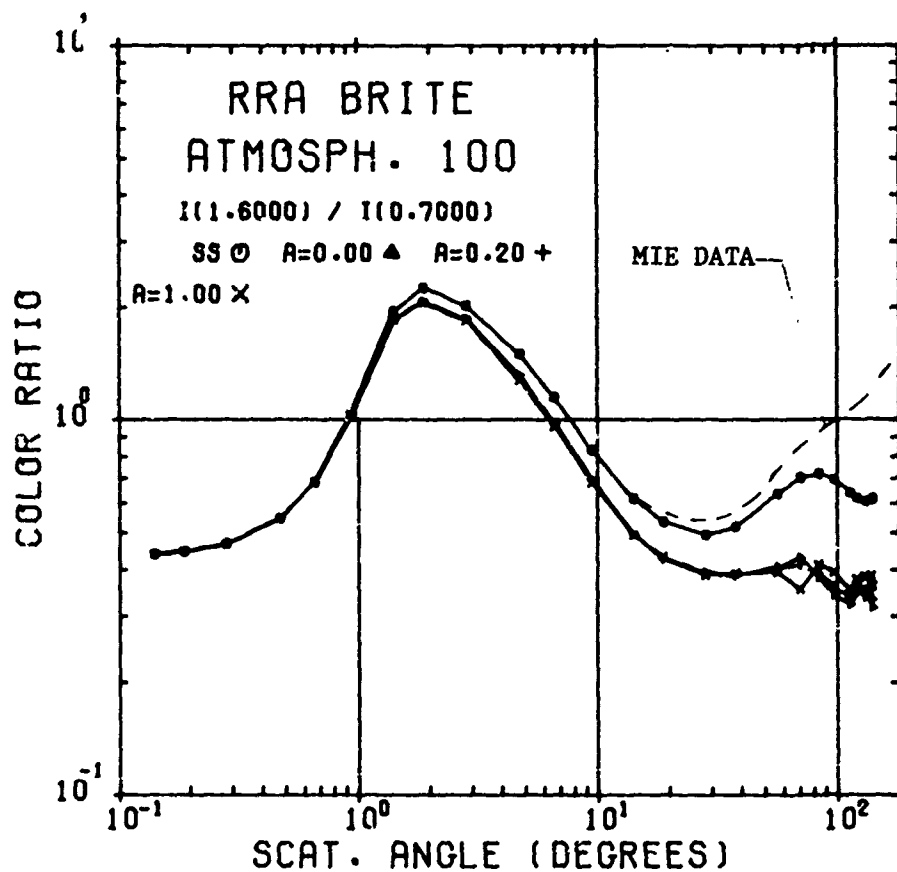
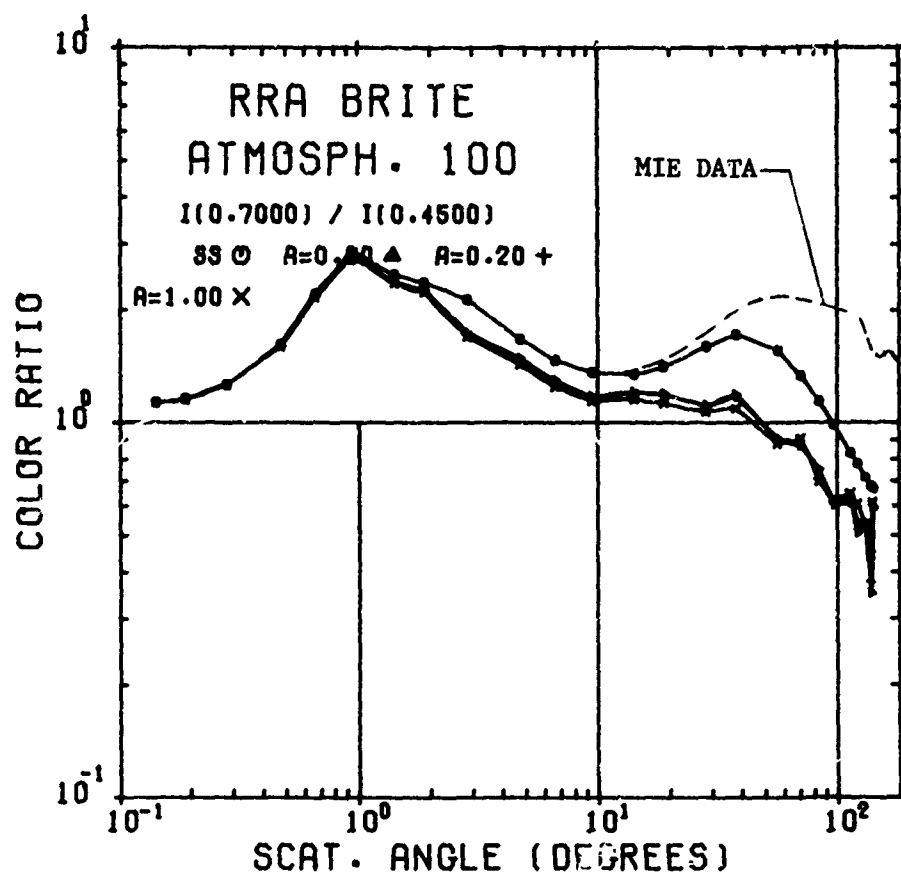


Fig. 24. Color Ratios of Sky Radiances for Model 100.  
 $(I(0.7\mu)/I(0.45\mu))$ , upper graph;  $I(1.6\mu)/I(0.7\mu)$ , lower graph)

## V. SCATTERING FUNCTIONS FOR STRATOSPHERIC AEROSOLS

Little is known about aerosol in the stratosphere and there exist only a few direct measurements of aerosol size distributions in the stratosphere. A more recent paper by Friend (Ref. 24) shows that -- at least in the 20 km layer -- ~ 93% of the stratospheric aerosols are Aitken particles and ~ 6% are particles having radii in the region around  $0.3\mu\text{m}$ . Friend's size distribution for the dust particles can be approximated by the gamma distribution (Ref. 25) as

$$\frac{dN}{d\log r} = c \cdot r^{8.5} e^{-28.33r} \quad (9)$$

or

$$\frac{dN}{dr} = a \cdot r^{7.5} e^{-28.33r} \quad (9a)$$

with the peak of the distribution (9) obtained at  $r_p = 8.5/28.33 = 0.3\mu\text{m}$  and of the distribution (9a) at  $0.265\mu\text{m}$ .

Mie calculations were performed for Aitken particles (model 30) and for the size distribution given by Eq. (9a) (model 20). For the Aitken particles, the size distribution was chosen to be constant (18.68) with limiting radii of  $r_1 = 0.01\mu\text{m}$  and  $0.06\mu\text{m}$ . The total number of Aitken particles is therefore  $18.68 \cdot 0.05 = 0.934\text{cm}^{-3}$ . The value  $a$  in the distribution (9a) was taken to  $1.0396 \cdot 10^7$ , the lower and upper limit of the particle radii was chosen to  $0.1\mu\text{m}$  and  $10.0\mu\text{m}$ . The total number of particles is then approximately (Ref. 22)  $N = 1.0396 \cdot 10^7 \cdot 28.33^{-8.5} \cdot \Gamma(8.5) = 0.066\text{cm}^{-3}$ . The index of refraction was taken to  $1.50 - 0.01$  for both model 20 and model 30.

The computed scattering coefficients are listed in Table VIII, the normalized phase matrices are given for wavelengths of  $0.41\mu$ ,  $0.50\mu$ ,  $0.55\mu$ ,  $0.70\mu$ , and  $0.85\mu$  in Tables E1 through E5 for model 20 and in Tables E6 through E10 for model 30.

TABLE VIII. SCATTERING COEFFICIENTS FOR STRATOSPHERIC AEROSOLS ( $\text{cm}^{-1}$ )

$$m = 1.50 - 0.0i$$

Wavelengths	Model 20	Model 30
$0.41\mu$	6.500-10	2.943-12
$0.50\mu$	7.184-10	1.357-12
$0.55\mu$	7.315-10	9.299-13
$0.70\mu$	6.834-10	3.548-13
$0.85\mu$	5.747-10	1.629-13

It can be seen from Table VIII that the scattering coefficients of particles in the  $0.3\mu\text{m}$  region is almost independent of the wavelength, whereas the scattering coefficient for the Aitken particles varies proportionally to  $\lambda^{-3.97}$  (the scattering coefficient for molecules varies by  $\lambda^{-4}$ ). The scattering coefficients for particles having the size distribution (9a) are much larger than those for the Aitken particles even though the Aitken particles outnumber the larger particles by a factor of  $.934/.066 = 14.15$ . These high values can be verified by a simple hand calculation. The ratio of the scattering coefficients for models 20 and 30 can be approximated by

$$\frac{\sigma_{20}}{\sigma_{30}} \approx \frac{N_{20} \cdot 0.263^2 \cdot \pi \cdot Q(x_2)}{N_{30} \cdot 0.035^2 \cdot \pi \cdot Q(x_1)}$$

$$= 4.05 \cdot \frac{Q(x_2)}{Q(x_1)} \quad (10)$$

where  $Q(x)$  is the efficiency factor for particles of size  $x = 2\pi r/\lambda$  ( $r$  = radius,  $\lambda$  = wavelength). For  $\lambda = 0.41\mu$  we obtain (MIE-3 program)  $Q(2\pi \cdot 0.265/.41) = Q(4.06) \approx 4.05$  and  $Q(2\pi \cdot 0.035/.41) = Q(.536) \approx .02$  and therefore  $\sigma_{20}/\sigma_{30} \approx 820$ ; for  $\lambda = 0.85\mu$  the ratio  $\sigma_{20}/\sigma_{30}$  is computed to  $\sim 5.03 \cdot 10^3$ . Both of these ratios are in the same order of magnitude as those obtained from Table VIII.

A combined phase function for models 20 and 30 may be calculated by

$$p(\phi) = (\sigma_{20} \cdot p_{20}(\phi) + \sigma_{30} \cdot p_{30}(\phi)) / (\sigma_{20} + \sigma_{30}), \quad (11)$$

where  $p_{20}$  and  $p_{30}$  denote the phase functions for models 20 and 30, respectively. Even though the phase functions for these two models are quite different (Fig. 25), it can be seen from Table VIII and Eq. (1) that the stratospheric aerosol scattering is dominated by the large particles and -- under the assumption of the particle concentrations for Aitken particles and large particles as reported in Ref. 24 -- that light scattering by Aitken particles may be neglected in the stratosphere.

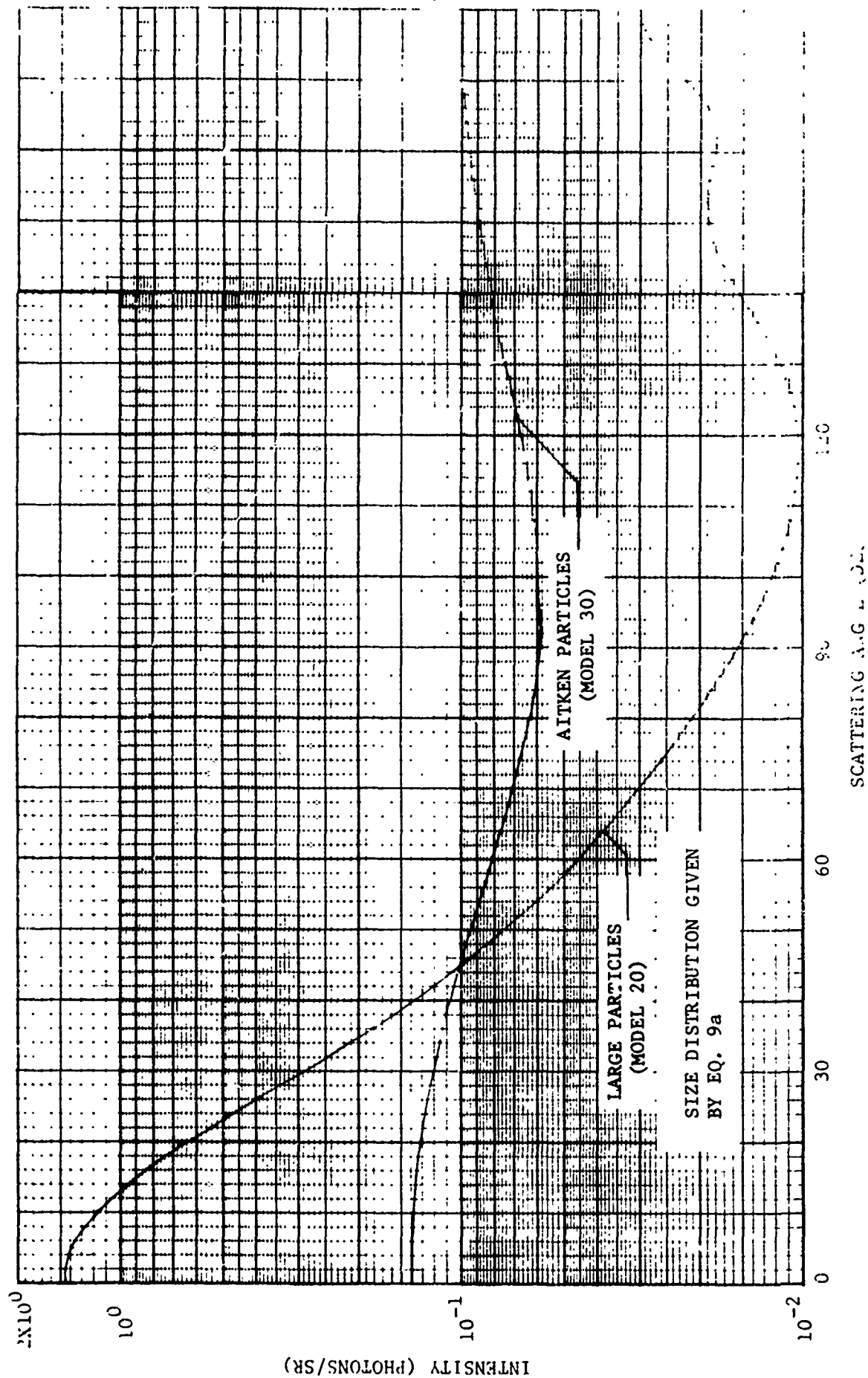


Fig. 25. Normalized Phase Function for Stratospheric Aerosols,  $\tau = 0.55$ .

# VI. FOG SCATTERING IN THE VISIBLE AND NEAR IR

The gamma distribution (Ref. 22)

$$\frac{dN}{dr} = D \cdot r^m \cdot e^{-br} \quad (9b)$$

was used for MIE calculations in fog. Four different types of fog particles were assumed. These size distributions are designated as models 1, 2, 3, and 4 (see Refs. 26 and 15 ; the constants needed in Eq. (9b) are listed in Table IX. Plots of the size distributions for fog models 1, 2, 3, and 4 are given in Fig. 24 of Ref. 15. Using Eq. (9b), the mean particle radius is given by

$$r_2 = \frac{(m+1)(m+2)}{b} \quad (12)$$

and the total number of particles by (Ref. 25)

$$N_0 = D \cdot \Gamma(m+1) \cdot b^{-(m+1)} \quad (13)$$

The extinction coefficient may then be approximated by

$$\sigma = 2\pi \cdot N_0 \cdot r_2^2 \cdot 10^{-3} (\text{km}^{-1}) \quad (14)$$

where  $N_0$  and  $r_2$  are expressed in  $\text{cm}^{-3}$  and  $\mu\text{m}$ , respectively.

The calculations were performed for wavelengths of  $0.40\mu$ ,  $0.6943\mu$  (Ruby laser wavelength), and  $0.80\mu$ . The indices of refraction for these three wavelengths were taken to be  $1.343 - 0.0i$ ,  $1.330 - 0.24 \cdot 10^{-6}i$ , and  $1.328 - 0.0i$ , respectively. The computed attenuation coefficients are compared in Table X with the extinction coefficient given by Eq. (14). The corresponding phase matrices for all models and wavelengths under consideration are given in Tables F1 through F12. Plots for  $\lambda = 0.6943\mu$  and fog models 1, 2, 3, and 4 are given in Fig. 26.



TABLE IX. FOG PARTICLE PARAMETERS

Model	m	b	D	$N_0$ [ $\text{cm}^{-3}$ ]	$r_2$ [ $\mu\text{m}$ ]	Particle Range
1	3	0.3	0.02700	20	14.907	1-40 $\mu$
2	3	0.375	0.06592	20	11.926	.8-32 $\mu$
3	6	1.5	2.37305	100	4.989	.4-12 $\mu$
4	6	3.0	607.50000	200	2.494	.4-6 $\mu$

TABLE X. ATTENUATION COEFFICIENTS ( $\text{cm}^{-1}$ ) FOR FOG (INDEX OF REFRACTION = 1.343 - 0.01 FOR 0.40 $\mu$ , 1.330 - 0.24  $\cdot 10^{-6}$  FOR 0.6943 $\mu$  AND 1.328 - 0.01 FOR 0.80 $\mu$ )

MODEL NO.	$\sigma_{\text{EXT}}(0.40\mu)$	$\sigma_{\text{EXT}}(0.6943\mu)$	$\sigma_{\text{ABS}}(0.6943\mu)$	$\sigma_{\text{EXT}}(0.80\mu)$	$\sigma_{\text{EXT}}(\text{Eq. 13})$
1	$2.801 \cdot 10^{-4}$	$2.831 \cdot 10^{-4}$	$2.265 \cdot 10^{-8}$	$2.840 \cdot 10^{-4}$	$2.793 \cdot 10^{-4}$
2	$1.800 \cdot 10^{-4}$	$1.821 \cdot 10^{-4}$	$1.141 \cdot 10^{-8}$	$1.828 \cdot 10^{-4}$	$1.787 \cdot 10^{-4}$
3	$1.633 \cdot 10^{-4}$	$1.670 \cdot 10^{-4}$	$4.687 \cdot 10^{-9}$	$1.681 \cdot 10^{-4}$	$1.564 \cdot 10^{-4}$
4	$8.414 \cdot 10^{-5}$	$8.722 \cdot 10^{-5}$	$1.147 \cdot 10^{-9}$	$8.827 \cdot 10^{-5}$	$7.819 \cdot 10^{-5}$

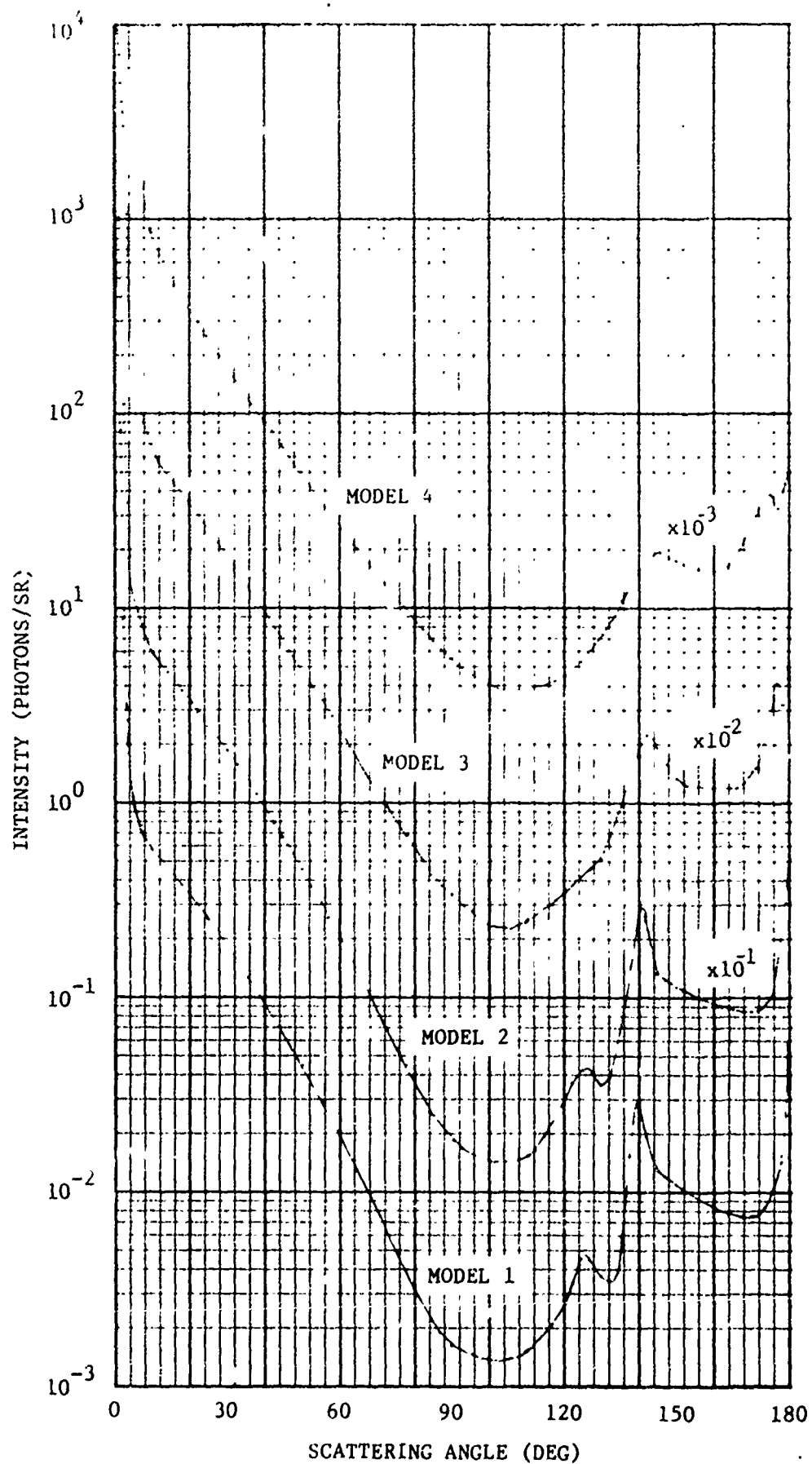


Fig. 26. Normalized Phase Function for Fog Models,  $\lambda = 0.6943\mu$

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## APPENDIX A

Normalized Phase Matrices for Aerosol Particles in an  
Atmosphere with a Relative Humidity of 75%

TABLE A3. NORMALIZED PHASE MATRIX FOR SPHERICAL-SHELL PARTICLES AT A 1% RELATIVE HUMIDITY,  $\lambda=0.50$   
 $M1=1.68/0.001-0.0400001$ ,  $M2=3.398000-0.000001$

SCATTERING ANGLE	13	12	13	14	15	12	13	14	15	13	12	13	14	15	13	12	13	14	15
0.03	1.73337E+01	1.74393E+01	1.74393E+01	-1.31223E-01	9.00000E-02	2.45507E-02	2.45507E-02	2.45507E-02	9.00000E-02	9.00000E-02	2.45507E-02	2.45507E-02	2.45507E-02	9.00000E-02	9.00000E-02	2.45507E-02	2.45507E-02	2.45507E-02	9.00000E-02
1.03	0.53040E+01	0.53040E+01	0.53040E+01	-2.00702E-02	8.00000E-02	2.00702E-02	2.00702E-02	2.00702E-02	8.00000E-02	8.00000E-02	2.00702E-02	2.00702E-02	2.00702E-02	8.00000E-02	8.00000E-02	2.00702E-02	2.00702E-02	2.00702E-02	8.00000E-02
2.03	3.57604E+00	3.57604E+00	3.57604E+00	-5.80234E-02	4.00000E-02	5.80234E-02	5.80234E-02	5.80234E-02	4.00000E-02	4.00000E-02	5.80234E-02	5.80234E-02	5.80234E-02	4.00000E-02	4.00000E-02	5.80234E-02	5.80234E-02	5.80234E-02	4.00000E-02
3.03	2.51058E+00	2.51058E+00	2.51058E+00	-2.74730E-02	3.00000E-02	2.74730E-02	2.74730E-02	2.74730E-02	3.00000E-02	3.00000E-02	2.74730E-02	2.74730E-02	2.74730E-02	3.00000E-02	3.00000E-02	2.74730E-02	2.74730E-02	2.74730E-02	3.00000E-02
4.03	1.95035E+00	1.95035E+00	1.95035E+00	-1.52130E-02	2.00000E-02	1.52130E-02	1.52130E-02	1.52130E-02	2.00000E-02	2.00000E-02	1.52130E-02	1.52130E-02	1.52130E-02	2.00000E-02	2.00000E-02	1.52130E-02	1.52130E-02	1.52130E-02	2.00000E-02
5.03	1.47270E+00	1.47270E+00	1.47270E+00	-8.17042E-03	1.00000E-02	8.17042E-03	8.17042E-03	8.17042E-03	1.00000E-02	1.00000E-02	8.17042E-03	8.17042E-03	8.17042E-03	1.00000E-02	1.00000E-02	8.17042E-03	8.17042E-03	8.17042E-03	1.00000E-02
6.03	1.17057E+00	1.17057E+00	1.17057E+00	-4.21011E-03	6.00000E-03	4.21011E-03	4.21011E-03	4.21011E-03	6.00000E-03	6.00000E-03	4.21011E-03	4.21011E-03	4.21011E-03	6.00000E-03	6.00000E-03	4.21011E-03	4.21011E-03	4.21011E-03	6.00000E-03
7.03	9.02021E-01	9.02021E-01	9.02021E-01	-2.18111E-03	4.00000E-03	2.18111E-03	2.18111E-03	2.18111E-03	4.00000E-03	4.00000E-03	2.18111E-03	2.18111E-03	2.18111E-03	4.00000E-03	4.00000E-03	2.18111E-03	2.18111E-03	2.18111E-03	4.00000E-03
8.03	6.74147E-01	6.74147E-01	6.74147E-01	-1.14137E-03	3.00000E-03	1.14137E-03	1.14137E-03	1.14137E-03	3.00000E-03	3.00000E-03	1.14137E-03	1.14137E-03	1.14137E-03	3.00000E-03	3.00000E-03	1.14137E-03	1.14137E-03	1.14137E-03	3.00000E-03
9.03	4.84017E-01	4.84017E-01	4.84017E-01	-6.29046E-04	2.00000E-03	6.29046E-04	6.29046E-04	6.29046E-04	2.00000E-03	2.00000E-03	6.29046E-04	6.29046E-04	6.29046E-04	2.00000E-03	2.00000E-03	6.29046E-04	6.29046E-04	6.29046E-04	2.00000E-03
10.03	3.50704E-01	3.50704E-01	3.50704E-01	-3.27045E-04	1.00000E-03	3.27045E-04	3.27045E-04	3.27045E-04	1.00000E-03	1.00000E-03	3.27045E-04	3.27045E-04	3.27045E-04	1.00000E-03	1.00000E-03	3.27045E-04	3.27045E-04	3.27045E-04	1.00000E-03
11.03	2.50704E-01	2.50704E-01	2.50704E-01	-1.73137E-04	6.00000E-04	1.73137E-04	1.73137E-04	1.73137E-04	6.00000E-04	6.00000E-04	1.73137E-04	1.73137E-04	1.73137E-04	6.00000E-04	6.00000E-04	1.73137E-04	1.73137E-04	1.73137E-04	6.00000E-04
12.03	1.81140E-01	1.81140E-01	1.81140E-01	-8.54245E-05	4.00000E-04	8.54245E-05	8.54245E-05	8.54245E-05	4.00000E-04	4.00000E-04	8.54245E-05	8.54245E-05	8.54245E-05	4.00000E-04	4.00000E-04	8.54245E-05	8.54245E-05	8.54245E-05	4.00000E-04
13.03	1.31140E-01	1.31140E-01	1.31140E-01	-4.54245E-05	3.00000E-04	4.54245E-05	4.54245E-05	4.54245E-05	3.00000E-04	3.00000E-04	4.54245E-05	4.54245E-05	4.54245E-05	3.00000E-04	3.00000E-04	4.54245E-05	4.54245E-05	4.54245E-05	3.00000E-04
14.03	9.54245E-02	9.54245E-02	9.54245E-02	-2.54245E-05	2.00000E-04	2.54245E-05	2.54245E-05	2.54245E-05	2.00000E-04	2.00000E-04	2.54245E-05	2.54245E-05	2.54245E-05	2.00000E-04	2.00000E-04	2.54245E-05	2.54245E-05	2.54245E-05	2.00000E-04
15.03	6.95424E-02	6.95424E-02	6.95424E-02	-1.31223E-05	1.00000E-04	1.31223E-05	1.31223E-05	1.31223E-05	1.00000E-04	1.00000E-04	1.31223E-05	1.31223E-05	1.31223E-05	1.00000E-04	1.00000E-04	1.31223E-05	1.31223E-05	1.31223E-05	1.00000E-04
16.03	5.07046E-02	5.07046E-02	5.07046E-02	-6.74147E-06	6.00000E-05	6.74147E-06	6.74147E-06	6.74147E-06	6.00000E-05	6.00000E-05	6.74147E-06	6.74147E-06	6.74147E-06	6.00000E-05	6.00000E-05	6.74147E-06	6.74147E-06	6.74147E-06	6.00000E-05
17.03	3.74147E-02	3.74147E-02	3.74147E-02	-3.57604E-06	4.00000E-05	3.57604E-06	3.57604E-06	3.57604E-06	4.00000E-05	4.00000E-05	3.57604E-06	3.57604E-06	3.57604E-06	4.00000E-05	4.00000E-05	3.57604E-06	3.57604E-06	3.57604E-06	4.00000E-05
18.03	2.74147E-02	2.74147E-02	2.74147E-02	-2.00702E-06	3.00000E-05	2.00702E-06	2.00702E-06	2.00702E-06	3.00000E-05	3.00000E-05	2.00702E-06	2.00702E-06	2.00702E-06	3.00000E-05	3.00000E-05	2.00702E-06	2.00702E-06	2.00702E-06	3.00000E-05
19.03	2.00702E-02	2.00702E-02	2.00702E-02	-1.14137E-06	2.00000E-05	1.14137E-06	1.14137E-06	1.14137E-06	2.00000E-05	2.00000E-05	1.14137E-06	1.14137E-06	1.14137E-06	2.00000E-05	2.00000E-05	1.14137E-06	1.14137E-06	1.14137E-06	2.00000E-05
20.03	1.47270E-02	1.47270E-02	1.47270E-02	-6.29046E-07	1.00000E-05	6.29046E-07	6.29046E-07	6.29046E-07	1.00000E-05	1.00000E-05	6.29046E-07	6.29046E-07	6.29046E-07	1.00000E-05	1.00000E-05	6.29046E-07	6.29046E-07	6.29046E-07	1.00000E-05
21.03	1.07046E-02	1.07046E-02	1.07046E-02	-3.27045E-07	6.00000E-06	3.27045E-07	3.27045E-07	3.27045E-07	6.00000E-06	6.00000E-06	3.27045E-07	3.27045E-07	3.27045E-07	6.00000E-06	6.00000E-06	3.27045E-07	3.27045E-07	3.27045E-07	6.00000E-06
22.03	7.74147E-03	7.74147E-03	7.74147E-03	-1.73137E-07	4.00000E-06	1.73137E-07	1.73137E-07	1.73137E-07	4.00000E-06	4.00000E-06	1.73137E-07	1.73137E-07	1.73137E-07	4.00000E-06	4.00000E-06	1.73137E-07	1.73137E-07	1.73137E-07	4.00000E-06
23.03	5.74147E-03	5.74147E-03	5.74147E-03	-8.54245E-08	3.00000E-06	8.54245E-08	8.54245E-08	8.54245E-08	3.00000E-06	3.00000E-06	8.54245E-08	8.54245E-08	8.54245E-08	3.00000E-06	3.00000E-06	8.54245E-08	8.54245E-08	8.54245E-08	3.00000E-06
24.03	4.24147E-03	4.24147E-03	4.24147E-03	-4.54245E-08	2.00000E-06	4.54245E-08	4.54245E-08	4.54245E-08	2.00000E-06	2.00000E-06	4.54245E-08	4.54245E-08	4.54245E-08	2.00000E-06	2.00000E-06	4.54245E-08	4.54245E-08	4.54245E-08	2.00000E-06
25.03	3.14147E-03	3.14147E-03	3.14147E-03	-2.54245E-08	1.00000E-06	2.54245E-08	2.54245E-08	2.54245E-08	1.00000E-06	1.00000E-06	2.54245E-08	2.54245E-08	2.54245E-08	1.00000E-06	1.00000E-06	2.54245E-08	2.54245E-08	2.54245E-08	1.00000E-06
26.03	2.24147E-03	2.24147E-03	2.24147E-03	-1.31223E-08	6.00000E-07	1.31223E-08	1.31223E-08	1.31223E-08	6.00000E-07	6.00000E-07	1.31223E-08	1.31223E-08	1.31223E-08	6.00000E-07	6.00000E-07	1.31223E-08	1.31223E-08	1.31223E-08	6.00000E-07
27.03	1.64147E-03	1.64147E-03	1.64147E-03	-6.74147E-09	4.00000E-07	6.74147E-09	6.74147E-09	6.74147E-09	4.00000E-07	4.00000E-07	6.74147E-09	6.74147E-09	6.74147E-09	4.00000E-07	4.00000E-07	6.74147E-09	6.74147E-09	6.74147E-09	4.00000E-07
28.03	1.24147E-03	1.24147E-03	1.24147E-03	-3.57604E-09	3.00000E-07	3.57604E-09	3.57604E-09	3.57604E-09	3.00000E-07	3.00000E-07	3.57604E-09	3.57604E-09	3.57604E-09	3.00000E-07	3.00000E-07	3.57604E-09	3.57604E-09	3.57604E-09	3.00000E-07
29.03	9.02021E-04	9.02021E-04	9.02021E-04	-2.18111E-09	2.00000E-07	2.18111E-09	2.18111E-09	2.18111E-09	2.00000E-07	2.00000E-07	2.18111E-09	2.18111E-09	2.18111E-09	2.00000E-07	2.00000E-07	2.18111E-09	2.18111E-09	2.18111E-09	2.00000E-07
30.03	6.74147E-04	6.74147E-04	6.74147E-04	-1.14137E-09	1.00000E-07	1.14137E-09	1.14137E-09	1.14137E-09	1.00000E-07	1.00000E-07	1.14137E-09	1.14137E-09	1.14137E-09	1.00000E-07	1.00000E-07	1.14137E-09	1.14137E-09	1.14137E-09	1.00000E-07
31.03	4.84017E-04	4.84017E-04	4.84017E-04	-6.29046E-10	6.00000E-08	6.29046E-10	6.29046E-10	6.29046E-10	6.00000E-08	6.00000E-08	6.29046E-10	6.29046E-10	6.29046E-10	6.00000E-08	6.00000E-08	6.29046E-10	6.29046E-10	6.29046E-10	6.00000E-08
32.03	3.50704E-04	3.50704E-04	3.50704E-04	-3.27045E-10	4.00000E-08	3.27045E-10	3.27045E-10	3.27045E-10	4.00000E-08	4.00000E-08	3.27045E-10	3.27045E-10	3.27045E-10	4.00000E-08	4.00000E-08	3.27045E-10	3.27045E-10	3.27045E-10	4.00000E-08
33.03	2.50704E-04	2.50704E-04	2.50704E-04	-1.73137E-10	3.00000E-08	1.73137E-10	1.73137E-10	1.73137E-10	3.00000E-08	3.00000E-08	1.73137E-10	1.73137E-10	1.73137E-10	3.00000E-08	3.00000E-08	1.73137E-10	1.73137E-10	1.73137E-10	3.00000E-08
34.03	1.81140E-04	1.81140E-04	1.81140E-04	-8.54245E-11	2.00000E-08	8.54245E-11	8.54245E-11	8.54245E-11	2.00000E-08	2.00000E-08	8.54245E-11	8.54245E-11	8.54245E-11	2.00000E-08	2.00000E-08	8.54245E-11	8.54245E-11	8.54245E-11	2.00000E-08
35.03	1.31140E-04	1.31140E-04	1.31140E-04	-4.54245E-11	1.00000E-08	4.54245E-11	4.54245E-11	4.54245E-11	1.00000E-08	1.00000E-08	4.54245E-11	4.54245E-11	4.54245E-11	1.00000E-08	1.00000E-08	4.54245E-11	4.54245E-11	4.54245E-11	1.00000E-08
36.03	9.54245E-05	9.54245E-05	9.54245E-05	-2.54245E-11	6.00000E-09	2.54245E-11	2.54245E-11	2.54245E-11	6.00000E-09	6.00000E-09	2.54245E-11	2.54245E-11	2.54245E-11	6.00000E-09	6.00000E-09	2.54245E-11	2.54245E-11	2.54245E-11	6.00000E-09
37.03	6.95424E-05	6.95424E-05	6.95424E-05	-1.31223E-11	4.00000E-09	1.31223E-11	1.31223E-11	1.31223E-11	4.00000E-09	4.00000E-09	1.31223E-11	1.31223E-11	1.3						

SCATTERING  
ANGLE[illegible]

TABLE A3. NORMALIZED PHASE MATRIX FOR SPHERICAL-SHELL PARTICLES AT A 75% RELATIVE HUMIDITY,  $\lambda=0.55\mu$

[illegible]



**SCATTER INC.**

[illegible]



TABLE A6. NORMALIZED PHASE MATRIX FOR HOMOGENEOUS PARTICLES AT 75% RELATIVE HUMIDITY,  $\lambda=0.30\mu$

$$MI = 1.489458 - 0.016330I, \quad MS = 1.489458 - 0.016330I$$
[illegible]

TABLE A7. NORMALIZED PHASE MATRIX FOR HOMOGENEOUS PARTICLES AT 75% RELATIVE HUMIDITY,  $\lambda = 0.60\mu$ 
$$M1=1.4425\pm 0.0079631, \quad M5=1.44251\pm 0.0179631$$
[illegible]

TABLE 10. NORMALIZED PHASE MATRIX FOR HOMOGENEOUS PARTICLES AT 75% RELATIVE HUMIDITY,  $\lambda=0.55\mu$

SCATTERING ANGLE	13	12	13	14	15	16
0.00	1.522336E-01	1.852386E-01	1.482224E-01	-7.932735E-12	3.397298E-02	1.411375E-02
1.00	6.829062E-03	5.536876E-03	6.597976E-03	-2.959940E-02	3.298047E-02	1.052904E-02
2.00	3.495941E-03	3.678416E-03	3.678416E-03	-2.976767E-02	3.151507E-02	1.125231E-02
3.00	2.452226E-03	2.699999E-03	2.699999E-03	3.108812E-02	2.794949E-02	1.339490E-02
4.00	2.021818E-03	2.193797E-03	2.193797E-03	3.108812E-02	2.621483E-02	1.411375E-02
5.00	1.795966E-03	1.797896E-03	1.795966E-03	3.364336E-02	2.621483E-02	1.411375E-02
6.00	1.535376E-03	1.535376E-03	1.535376E-03	3.364336E-02	2.621483E-02	1.411375E-02
7.00	1.339327E-03	1.339327E-03	1.339327E-03	3.364336E-02	2.621483E-02	1.411375E-02
8.00	1.139327E-03	1.139327E-03	1.139327E-03	3.364336E-02	2.621483E-02	1.411375E-02
9.00	9.393276E-04	9.393276E-04	9.393276E-04	3.364336E-02	2.621483E-02	1.411375E-02
10.00	7.393276E-04	7.393276E-04	7.393276E-04	3.364336E-02	2.621483E-02	1.411375E-02
11.00	5.393276E-04	5.393276E-04	5.393276E-04	3.364336E-02	2.621483E-02	1.411375E-02
12.00	3.393276E-04	3.393276E-04	3.393276E-04	3.364336E-02	2.621483E-02	1.411375E-02
13.00	1.393276E-04	1.393276E-04	1.393276E-04	3.364336E-02	2.621483E-02	1.411375E-02
14.00	-6.393276E-05	-6.393276E-05	-6.393276E-05	3.364336E-02	2.621483E-02	1.411375E-02
15.00	-1.393276E-04	-1.393276E-04	-1.393276E-04	3.364336E-02	2.621483E-02	1.411375E-02
16.00	-2.393276E-04	-2.393276E-04	-2.393276E-04	3.364336E-02	2.621483E-02	1.411375E-02
17.00	-3.393276E-04	-3.393276E-04	-3.393276E-04	3.364336E-02	2.621483E-02	1.411375E-02
18.00	-4.393276E-04	-4.393276E-04	-4.393276E-04	3.364336E-02	2.621483E-02	1.411375E-02
19.00	-5.393276E-04	-5.393276E-04	-5.393276E-04	3.364336E-02	2.621483E-02	1.411375E-02
20.00	-6.393276E-04	-6.393276E-04	-6.393276E-04	3.364336E-02	2.621483E-02	1.411375E-02
21.00	-7.393276E-04	-7.393276E-04	-7.393276E-04	3.364336E-02	2.621483E-02	1.411375E-02
22.00	-8.393276E-04	-8.393276E-04	-8.393276E-04	3.364336E-02	2.621483E-02	1.411375E-02
23.00	-9.393276E-04	-9.393276E-04	-9.393276E-04	3.364336E-02	2.621483E-02	1.411375E-02
24.00	-1.039327E-03	-1.039327E-03	-1.039327E-03	3.364336E-02	2.621483E-02	1.411375E-02
25.00	-1.139327E-03	-1.139327E-03	-1.139327E-03	3.364336E-02	2.621483E-02	1.411375E-02
26.00	-1.239327E-03	-1.239327E-03	-1.239327E-03	3.364336E-02	2.621483E-02	1.411375E-02
27.00	-1.339327E-03	-1.339327E-03	-1.339327E-03	3.364336E-02	2.621483E-02	1.411375E-02
28.00	-1.439327E-03	-1.439327E-03	-1.439327E-03	3.364336E-02	2.621483E-02	1.411375E-02
29.00	-1.539327E-03	-1.539327E-03	-1.539327E-03	3.364336E-02	2.621483E-02	1.411375E-02
30.00	-1.639327E-03	-1.639327E-03	-1.639327E-03	3.364336E-02	2.621483E-02	1.411375E-02
31.00	-1.739327E-03	-1.739327E-03	-1.739327E-03	3.364336E-02	2.621483E-02	1.411375E-0

TABLE A9. NORMALIZED PHASE MATRIX FOR HOMOGENEOUS PARTICLES AT 75% RELATIVE HUMIDITY,  $\lambda = 0.70 \mu\text{m}$

 $MI = 1.444311 \pm 0.0236791$ ,  $MS = 1.444311 \pm 0.0236791$ [illegible]

TABLE 4.30. NORMALIZED PHASE MATRIX FOR HOMOGENEOUS PARTICLES AT 75% RELATIVE HUMIDITY,  $\lambda = 0.600 \mu$

[illegible]

**APPENDIX B.**

**Normalized Phase Matrices for Type B Aerosols**



## SCATTERING

SCATTERING ANGLE	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90																																																																																																																																
0.00	1.260900E+01	1.250090E+01	1.240090E+01	1.230090E+01	1.220090E+01	1.210090E+01	1.200090E+01	1.190090E+01	1.180090E+01	1.170090E+01	1.160090E+01	1.150090E+01	1.140090E+01	1.130090E+01	1.120090E+01	1.110090E+01	1.100090E+01	1.090090E+01	1.080090E+01	1.070090E+01	1.060090E+01	1.050090E+01	1.040090E+01	1.030090E+01	1.020090E+01	1.010090E+01	1.000090E+01	9.900090E+00	9.800090E+00	9.700090E+00	9.600090E+00	9.500090E+00	9.400090E+00	9.300090E+00	9.200090E+00	9.100090E+00	9.000090E+00	8.900090E+00	8.800090E+00	8.700090E+00	8.600090E+00	8.500090E+00	8.400090E+00	8.300090E+00	8.200090E+00	8.100090E+00	8.000090E+00	7.900090E+00	7.800090E+00	7.700090E+00	7.600090E+00	7.500090E+00	7.400090E+00	7.300090E+00	7.200090E+00	7.100090E+00	7.000090E+00	6.900090E+00	6.800090E+00	6.700090E+00	6.600090E+00	6.500090E+00	6.400090E+00	6.300090E+00	6.200090E+00	6.100090E+00	6.000090E+00	5.900090E+00	5.800090E+00	5.700090E+00	5.600090E+00	5.500090E+00	5.400090E+00	5.300090E+00	5.200090E+00	5.100090E+00	5.000090E+00	4.900090E+00	4.800090E+00	4.700090E+00	4.600090E+00	4.500090E+00	4.400090E+00	4.300090E+00	4.200090E+00	4.100090E+00	4.000090E+00	3.900090E+00	3.800090E+00	3.700090E+00	3.600090E+00	3.500090E+00	3.400090E+00	3.300090E+00	3.200090E+00	3.100090E+00	3.000090E+00	2.900090E+00	2.800090E+00	2.700090E+00	2.600090E+00	2.500090E+00	2.400090E+00	2.300090E+00	2.200090E+00	2.100090E+00	2.000090E+00	1.900090E+00	1.800090E+00	1.700090E+00	1.600090E+00	1.500090E+00	1.400090E+00	1.300090E+00	1.200090E+00	1.100090E+00	1.000090E+00	9.900090E+00	9.800090E+00	9.700090E+00	9.600090E+00	9.500090E+00	9.400090E+00	9.300090E+00	9.200090E+00	9.100090E+00	9.000090E+00	8.900090E+00	8.800090E+00	8.700090E+00	8.600090E+00	8.500090E+00	8.400090E+00	8.300090E+00	8.200090E+00	8.100090E+00	8.000090E+00	7.900090E+00	7.800090E+00	7.700090E+00	7.600090E+00	7.500090E+00	7.400090E+00	7.300090E+00	7.200090E+00	7.100090E+00	7.000090E+00	6.900090E+00	6.800090E+00	6.700090E+00	6.600090E+00	6.500090E+00	6.400090E+00	6.300090E+00	6.200090E+00	6.100090E+00	6.000090E+00	5.900090E+00	5.800090E+00	5.700090E+00	5.600090E+00	5.500090E+00	5.400090E+00	5.300090E+00	5.200090E+00	5.100090E+00	5.000090E+00	4.900090E+00	4.800090E+00	4.700090E+00	4.600090E+00	4.500090E+00	4.400090E+00	4.300090E+00	4.200090E+00	4.100090E+00	4.000090E+00	3.900090E+00	3.800090E+00	3.700090E+00	3.600090E+00	3.500090E+00	3.400090E+00	3.300090E+00	3.200090E+00	3.100090E+00	3.000090E+00	2.900090E+00	2.800090E+00	2.700090E+00	2.600090E+00	2.500090E+00	2.400090E+00	2.300090E+00	2.200090E+00	2.100090E+00	2.000090E+00	1.900090E+00	1.800090E+00	1.700090E+00	1.600090E+00	1.500090E+00	1.400090E+00	1.300090E+00	1.200090E+00	1.10



TABLE B3. NORMALIZED PHASE MATRIX FOR TYPE B AEROSOLS,  $M=1.50-0.03i$ ,  $R_p=0.06\mu m$ ,  $v=4.0$ ,  $\lambda=0.70\mu$

SCATTERING ANGLE	11	12	13	14	15	16
0.00	5.566082E+00	5.566082E+00	5.566082E+00	-4.784794E-15	7.332121E-02	5.741037E-02
0.10	5.535413E+00	5.535413E+00	5.535413E+00	-1.737353E-04	6.009397E-02	5.528391E-02
0.20	5.525454E+00	5.525454E+00	5.525454E+00	-6.003715E-04	6.009397E-02	5.495891E-02
0.30	5.477594E+00	5.477594E+00	5.477594E+00	-2.466770E-03	5.506771E-02	4.724742E-02
0.40	5.481800E+00	5.501226E+00	5.431112E+00	-1.566720E-02	4.841702E-02	4.240570E-02
0.50	5.313730E+00	5.313730E+00	5.289582E+00	-4.068032E-03	5.137895E-02	3.947592E-02
0.60	5.289737E+00	5.289737E+00	5.289582E+00	-7.049827E-03	4.680495E-02	3.604395E-02
0.70	5.054153E+00	4.951472E+00	4.951472E+00	-6.703215E-03	4.500497E-02	3.257701E-02
0.80	4.971702E+00	4.879082E+00	4.879082E+00	-1.378745E-02	4.251417E-02	2.957032E-02
0.90	4.971702E+00	4.879082E+00	4.879082E+00	-1.378745E-02	4.251417E-02	2.957032E-02
1.00	4.971702E+00	4.879082E+00	4.879082E+00	-1.378745E-02	4.251417E-02	2.957032E-02
1.10	4.971702E+00	4.879082E+00	4.879082E+00	-1.378745E-02	4.251417E-02	2.957032E-02
1.20	4.971702E+00	4.879082E+00	4.879082E+00	-1.378745E-02	4.251417E-02	2.957032E-02
1.30	4.971702E+00	4.879082E+00	4.879082E+00	-1.378745E-02	4.251417E-02	2.957032E-02
1.40	4.971702E+00	4.879082E+00	4.879082E+00	-1.378745E-02	4.251417E-02	2.957032E-02
1.50	4.971702E+00	4.879082E+00	4.879082E+00	-1.378745E-02	4.251417E-02	2.957032E-02
1.60	4.971702E+00	4.879082E+00	4.879082E+00	-1.378745E-02	4.251417E-02	2.957032E-02
1.70	4.971702E+00	4.879082E+00	4.879082E+00	-1.378745E-02	4.251417E-02	2.957032E-02
1.80	4.971702E+00	4.879082E+00	4.879082E+00	-1.378745E-02	4.251417E-02	2.957032E-02
1.90	4.971702E+00	4.879082E+00	4.879082E+00	-1.378745E-02	4.251417E-02	2.957032E-02
2.00	4.971702E+00	4.879082E+00	4.879082E+00	-1.378745E-02	4.251417E-02	2.957032E-02
2.10	4.971702E+00	4.879082E+00	4.879082E+00	-1.378745E-02	4.251417E-02	2.957032E-02
2.20	4.971702E+00	4.879082E+00	4.879082E+00	-1.378745E-02	4.251417E-02	2.957032E-02
2.30	4.971702E+00	4.879082E+00	4.879082E+00	-1.378745E-02	4.251417E-02	2.957032E-02
2.40	4.971702E+00	4.879082E+00	4.879082E+00	-1.378745E-02	4.251417E-02	2.957032E-02
2.50	4.971702E+00	4.879082E+00	4.879082E+00	-1.378745E-02	4.251417E-02	2.957032E-02
2.60	4.971702E+00	4.879082E+00	4.879082E+00	-1.378745E-02	4.251417E-02	2.957032E-02
2.70	4.971702E+00	4.879082E+00	4.879082E+00	-1.378745E-02	4.251417E-02	2.957032E-02
2.80	4.971702E+00	4.879082E+00	4.879082E+00	-1.378745E-02	4.251417E-02	2.957032E-02
2.90	4.971702E+00	4.879082E+00	4.879082E+00	-1.378745E-02	4.251417E-02	2.957032E-02
3.00	4.971702E+00	4.879082E+00	4.879082E+00	-1.378745E-02	4.251417E-02	2.957032E-02
3.10	4.971702E+00	4.879082E+00	4.879082E+00	-1.378745E-02	4.251417E-02	2.957032E-02
3.20	4.971702E+00	4.879082E+00	4.879082E+00	-1.378745E-02	4.251417E-02	2.957032E-02
3.30	4.971702E+00	4.879082E+00	4.879082E+00	-1.378745E-02	4.251417E-02	2.957032E-02
3.40	4.971702E+00	4.879082E+00	4.879082E+00	-1.378745E-02</		

TABLE 34. NORMALIZED PHASE MATRIX FOR TYPE B AEROSOLS,  $M=3.50-0.01i$ ,  $R_s=0.06\mu M$ ,  $\gamma=6.0$ ,  $\lambda=1.60\mu$

[illegible]







TABLE 100. NORMALIZED PHASE MATRIX FOR TYPE B ARROWHEADS,  $\theta = 1.50-0.031$ ,  $\theta_0 = 0.0044$ ,  $\sin \theta_0 = 1.01401$ 

SCATTERING ANGLE	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480	481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500	501	502	503	504	505	506	507	508	509	510	511	512	513	514	515	516	517	518	519	520	521	522	523	524	525	526	527	528	529	530	531	532	533	534	535	536	537	538	539	540	541	542	543	544	545	546	547	548	549	550	551	552	553	554	555	556	557	558	559	560	561	562	563	564	565	566	567	568	569	570	571	572	573	574	575	576	577	578	579	580	581	582	583	584	585	586	587	588	589	590	591	592	593	594	595	596	597	598	599	600	601	602	603	604	605	606	607	608	609	610	611	612	613	614	615	616	617	618	619	620	621	622	623	624	625	626	627	628	629	630	631	632	633	634	635	636	637	638	639	640	641	642	643	644	645	646	647	648	649	650	651	652	653	654	655	656	657	658	659	660	661	662	663	664	665	666	667	668	669	670	671	672	673	674	675	676	677	678	679	680	681	682	683	684	685	686	687	688	689	690	691	692	693	694	695	696	697	698	699	700	701	702	703	704	705	706	707	708	709	710	711	712	713	714	715	716	717	718	719	720	721	722	723	724	725	726	727	728	729	730	731	732	733	734	735	736	737	738	739	740	741	742	743	744	745	746	747	748	749	750	751	752	753	754	755	756	757	758	759	760	761	762	763	764	765	766	767	768	769	770	771	772	773	774	775	776	777	778	779	780	781	782	783	784	785	786	787	788	789	790	791	792	793	794	795	796	797	798	799	800	801	802	803	804	805	806	807	808	809	810	811	812	813	814	815	816	817	818	819	820	821	822	823	824	825	826	827	828	829	830	831	832	833	834	835	836	837	838	839	840	841	842	843	844	845	846	847	848	849	850	851	852	853	854	855	856	857	858	859	860	861	862	863	864	865	866	867	868	869	870	871	872	873	874	875	876	877	878	879	880	881	882	883	884	885	886	887	888	889	890	891	892	893	894	895	896	897	898	899	900	901	902	903	904	905	906	907	908	909	910	911	912	913	914	915	916	917	918	919	920	921	922	923	924	925	926	927	928	929	930	931	932	933	934	935	936	937	938	939	940	941	942	943	944	945	946	947	948	949	950	951	952	953	954	955	956	957	958	959	960	961	962	963	964	965	966	967	968	969	970	971	972	973	974	975	976	977	978	979	980	981	982	983	984	985	986	987	988	989	990	991	992	993	994	995	996	997	998	999	1000
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## SCATTERING

[illegible]



TABLE 26A. NORMALIZED PHASE MATRIX FOR TYPE B AEROSOLS,  $\mu = 0.50-0.63$ ,  $R_p = 0.25 \mu$ ,  $m = 1.5$ ,  $\lambda = 0.45 \mu$

SCATTERING ANGLE	15	12	13	14	SCATTERING ANGLE
2.02	1.1234047E+08	1.1130315E+01	1.2042041E+02	-1.5870707E+14	08.04
2.04	1.1260047E+08	1.1204114E+01	1.2041047E+02	-1.5870707E+14	08.06
2.06	1.1286047E+08	1.1277913E+01	1.2040047E+02	-1.5870707E+14	08.08
2.08	1.1312047E+08	1.1351712E+01	1.2039047E+02	-1.5870707E+14	08.10
2.10	1.1338047E+08	1.1425511E+01	1.2038047E+02	-1.5870707E+14	08.12
2.12	1.1364047E+08	1.1499310E+01	1.2037047E+02	-1.5870707E+14	08.14
2.14	1.1390047E+08	1.1573109E+01	1.2036047E+02	-1.5870707E+14	08.16
2.16	1.1416047E+08	1.1646908E+01	1.2035047E+02	-1.5870707E+14	08.18
2.18	1.1442047E+08	1.1720707E+01	1.2034047E+02	-1.5870707E+14	08.20
2.20	1.1468047E+08	1.1794506E+01	1.2033047E+02	-1.5870707E+14	08.22
2.22	1.1494047E+08	1.1868305E+01	1.2032047E+02	-1.5870707E+14	08.24
2.24	1.1520047E+08	1.1942104E+01	1.2031047E+02	-1.5870707E+14	08.26
2.26	1.1546047E+08	1.2015903E+01	1.2030047E+02	-1.5870707E+14	08.28
2.28	1.1572047E+08	1.2089702E+01	1.2029047E+02	-1.5870707E+14	08.30
2.30	1.1598047E+08	1.2163501E+01	1.2028047E+02	-1.5870707E+14	08.32
2.32	1.1624047E+08	1.2237300E+01	1.2027047E+02	-1.5870707E+14	08.34
2.34	1.1650047E+08	1.2311099E+01	1.2026047E+02	-1.5870707E+14	08.36
2.36	1.1676047E+08	1.2384898E+01	1.2025047E+02	-1.5870707E+14	08.38
2.38	1.1702047E+08	1.2458697E+01	1.2024047E+02	-1.5870707E+14	08.40
2.40	1.1728047E+08	1.2532496E+01	1.2023047E+02	-1.5870707E+14	08.42
2.42	1.1754047E+08	1.2606295E+01	1.2022047E+02	-1.5870707E+14	08.44
2.44	1.1780047E+08	1.2680094E+01	1.2021047E+02	-1.5870707E+14	08.46
2.46	1.1806047E+08	1.2753893E+01	1.2020047E+02	-1.5870707E+14	08.48
2.48	1.1832047E+08	1.2827692E+01	1.2019047E+02	-1.5870707E+14	08.50
2.50	1.1858047E+08	1.2901491E+01	1.2018047E+02	-1.5870707E+14	08.52
2.52	1.1884047E+08	1.2975290E+01	1.2017047E+02	-1.5870707E+14	08.54
2.54	1.1910047E+08	1.3049089E+01	1.2016047E+02	-1.5870707E+14	08.56
2.56	1.1936047E+08	1.3122888E+01	1.2015047E+02	-1.5870707E+14	08.58
2.58	1.1962047E+08	1.3196687E+01	1.2014047E+02	-1.5870707E+14	08.60
2.60	1.1988047E+08	1.3270486E+01	1.2013047E+02	-1.5870707E+14	08.62
2.62	1.2014047E+08	1.3344285E+01	1.2012047E+02	-1.5870707E+14	08.64
2.64	1.2040047E+08	1.3418084E+01	1.2011047E+02	-1.5870707E+14	08.66
2.66	1.2066047E+08	1.3491883E+01	1.2010047E+02	-1.5870707E+14	08.68
2.68	1.2092047E+08	1.3565682E+01	1.2009047E+02	-1.5870707E+14	08.70
2.70	1.2118047E+08	1.3639481E+01	1.2008047E+02	-1.5870707E+14	08.72
2.72	1.2144047E+08	1.3713280E+01	1.2007047E+02	-1.5870707E+14	08.74
2.74	1.2170047E+08	1.3787079E+01	1.2006047E+02	-1.5870707E+14	08.76
2.76	1.2196047E+08	1.3860878E+01	1.2005047E+02	-1.5870707E+14	08.78
2.78	1.2222047E+08	1.3934677E+01	1.2004047E+02	-1.5870707E+14	08.80
2.80	1.2248047E+08	1.4008476E+01	1.2003047E+02	-1.5870707E+14	08.82
2.82	1.2274047E+08	1.4082275E+01	1.2002047E+02	-1.5870707E+14	08.84
2.84	1.2300047E+08	1.4156074E+01	1.2001047E+02	-1.5870707E+14	

TABLE B.1. NORMALIZED PHASE MATRIX FOR TYPE 3 AEROSOLS,  $m = 1.50 - 0.001i$ ,  $g = 0.324$ ,  $w = 0.5$ ,  $\lambda = 0.700$ 

SCATTERING ANGLE	11	12	13	14	SCATTERING ANGLE	15	16	17	18
9.00	2.5254915e+11	2.2553220e+11	2.0125322e+11	1.7671115e+11	9.00	9.840379e-02	6.3300007e-02	4.0172511e-02	2.7111111e-02
10.00	2.5400000e+11	2.2673790e+11	2.0253790e+11	1.7791115e+11	10.00	9.840379e-02	6.3300007e-02	4.0172511e-02	2.7111111e-02
11.00	2.5545000e+11	2.2794360e+11	2.0384360e+11	1.7911115e+11	11.00	9.840379e-02	6.3300007e-02	4.0172511e-02	2.7111111e-02
12.00	2.5690000e+11	2.2914930e+11	2.0514930e+11	1.8031115e+11	12.00	9.840379e-02	6.3300007e-02	4.0172511e-02	2.7111111e-02
13.00	2.5835000e+11	2.3035500e+11	2.0645500e+11	1.8151115e+11	13.00	9.840379e-02	6.3300007e-02	4.0172511e-02	2.7111111e-02
14.00	2.5980000e+11	2.3156070e+11	2.0776070e+11	1.8271115e+11	14.00	9.840379e-02	6.3300007e-02	4.0172511e-02	2.7111111e-02
15.00	2.6125000e+11	2.3276640e+11	2.0906640e+11	1.8391115e+11	15.00	9.840379e-02	6.3300007e-02	4.0172511e-02	2.7111111e-02
16.00	2.6270000e+11	2.3397210e+11	2.1037210e+11	1.8511115e+11	16.00	9.840379e-02	6.3300007e-02	4.0172511e-02	2.7111111e-02
17.00	2.6415000e+11	2.3517780e+11	2.1167780e+11	1.8631115e+11	17.00	9.840379e-02	6.3300007e-02	4.0172511e-02	2.7111111e-02
18.00	2.6560000e+11	2.3638350e+11	2.1298350e+11	1.8751115e+11	18.00	9.840379e-02	6.3300007e-02	4.0172511e-02	2.7111111e-02
19.00	2.6705000e+11	2.3758920e+11	2.1428920e+11	1.8871115e+11	19.00	9.840379e-02	6.3300007e-02	4.0172511e-02	2.7111111e-02
20.00	2.6850000e+11	2.3879490e+11	2.1559490e+11	1.8991115e+11	20.00	9.840379e-02	6.3300007e-02	4.0172511e-02	2.7111111e-02
21.00	2.6995000e+11	2.3999999e+11	2.1689999e+11	1.9111115e+11	21.00	9.840379e-02	6.3300007e-02	4.0172511e-02	2.7111111e-02
22.00	2.7140000e+11	2.4120500e+11	2.1820500e+11	1.9231115e+11	22.00	9.840379e-02	6.3300007e-02	4.0172511e-02	2.7111111e-02
23.00	2.7285000e+11	2.4241000e+11	2.1951000e+11	1.9351115e+11	23.00	9.840379e-02	6.3300007e-02	4.0172511e-02	2.7111111e-02
24.00	2.7430000e+11	2.4361500e+11	2.2081500e+11	1.9471115e+11	24.00	9.840379e-02	6.3300007e-02	4.0172511e-02	2.7111111e-02
25.00	2.7575000e+11	2.4482000e+11	2.2212000e+11	1.9591115e+11	25.00	9.840379e-02	6.3300007e-02	4.0172511e-02	2.7111111e-02
26.00	2.7720000e+11	2.4602500e+11	2.2342500e+11	1.9711115e+11	26.00	9.840379e-02	6.3300007e-02	4.0172511e-02	2.7111111e-02
27.00	2.7865000e+11	2.4723000e+11	2.2473000e+11	1.9831115e+11	27.00	9.840379e-02	6.3300007e-02	4.0172511e-02	2.7111111e-02
28.00	2.8010000e+11	2.4843500e+11	2.2603500e+11	1.9951115e+11	28.00	9.840379e-02	6.3300007e-02	4.0172511e-02	2.7111111e-02
29.00	2.8155000e+11	2.4964000e+11	2.2734000e+11	2.0071115e+11	29.00	9.840379e-02	6.3300007e-02	4.0172511e-02	2.7111111e-02
30.00	2.8300000e+11	2.5084500e+11	2.2864500e+11	2.0191115e+11	30.00	9.840379e-02	6.3300007e-02	4.0172511e-02	2.7111111e-02
31.00	2.8445000e+11	2.5205000e+11	2.2995000e+11	2.0311115e+11	31.00	9.840379e-02	6.3300007e-02	4.0172511e-02	2.7111111e-02
32.00	2.8590000e+11	2.5325500e+11	2.3125500e+11	2.0431115e+11	32.00	9.840379e-02	6.3300007e-02	4.0172511e-02	2.7111111e-02
33.00	2.8735000e+11	2.5446000e+11	2.3256000e+11	2.0551115e+11	33.00	9.840379e-02	6.3300007e-02	4.0172511e-02	2.7111111e-02
34.00	2.8880000e+11	2.5566500e+11	2.3386500e+11	2.0671115e+11	34.00	9.840379e-02	6.3300007e-02	4.0172511e-02	2.7111111e-02
35.00	2.9025000e+11	2.5687000e+11	2.3517000e+11	2.0791115e+11	35.00	9.840379e-02	6.3300007e-02	4.0172511e-02	2.7111111e-02
36.00	2.9170000e+11	2.5807500e+11	2.3647500e+11	2.0911115e+11	36.00	9.840379e-02	6.3300007e-02	4.0172511e-02	2.7111111e-02
37.00	2.9315000e+11	2.5928000e+11	2.3778000e+11	2.1031115e+11	37.00	9.840379e-02	6.3300007e-02	4.0172511e-02	2.7111111e-02
38.00	2.9460000e+11	2.6048500e+11	2.3908500e+11	2.1151115e+11	38.00	9.840379e-02	6.3300007e-02	4.0172511e-02	2.7111111e-02
39.00	2.9605000e+11	2.6169000e+11	2.4039000e+11	2.1271115e+11	39.00	9.840379e-02	6.3300007e-02	4.0172511e-02	2.7111111e-02
40.00	2.9750000e+11	2.6289500e+11	2.4169500e+11	2.1391115e+11	40.00	9.840379e-02	6.3300007e-02	4.0172511e-02	2.7111111e-02
41.00	2.9895000e+11	2.6410000e+11	2.4300000e+11	2.1511115e+11	41.00	9.840379e-02	6.3300007e-02	4.0172511e-02	2.7111111e-02
42.00	3.0040000e+11	2.6530500e+11	2.4430500e+11	2.1631115e+11	42.00	9.840379e-02	6.3300007e-02	4.0172511e-02	2.7111111e-02
43.00	3.0185000e+11	2.6651000e+11	2.4561000e+11	2.1751115e+11	43.00	9.840379e-02	6.3300007e-02	4.0172511e-02	2.7111111e-02
44.00	3.0330000e+11	2.6771500e+11	2.4691500e+11	2.1871115e+11	44.00	9.840379e-02	6.3300007e-02	4.0172511e-02	2.7111111e-02
45.00	3.0475000e+11	2.6892000e+11	2.4822000e+11	2.1991115e+11	45.00	9.840379e-02	6.3300007e-02	4.0172511e-02	2.7111111e-02
46.00	3.0620000e+11	2.7012500e+11	2.4952500e+11	2.2111115e+11	46.00	9.840379e-02	6.3300007e-02	4.0172511e-02	2.7111111e-02
47.00	3.0765000e+11	2.7133000e+11	2.5083000e+11	2.2231115e+11	47.00	9.840379e-02	6.3300007e-02	4.0172511e-02	2.7111111e-02
48.00	3.0910000e+11	2.7253500e+11	2.5213500e+11	2.2351115e+11	48.00	9.840379e-02	6.3300007e-02	4.0172511e-02	2.7111111e-02
49.00	3.1055000e+11	2.7374000e+11	2.5344000e+11	2.2471115e+11	49.00	9.840379e-02	6.3300007e-02	4.0172511e-02	2.7111111e-02
50.00	3.1200000e+11	2.7494500e+11	2.5474500e+11	2.2591115e+11	50.00	9.840379e-02	6.3300007e-02	4.0172511e-02	2.7111111e-02
51.00	3.1345000e+11	2.7615000e+11	2.5605000e+11	2.2711115e+11	51.00	9.840379e-02	6.3300007e-02	4.0172511e-02	2.7111111e-02
52.00	3.1490000e+11	2.7735500e+11	2.5735500e+11	2.2831115e+11	52.00	9.840379e-02	6.3300007e-02	4.0172511e-02	2.7111111e-02
53.00	3.1635000e+11	2.7856000e+11	2.5866000e+11	2.2951115e+11	53.00	9.840379e-02	6.3300007e-02	4.0172511e-02	2.7111111e-02
54.00	3.1780000e+11	2.7976500e+11	2.5996500e+11	2.3071115e+11	54.00	9.840379e-02	6.3300007e-02	4.0172511e-02	2.7111111e-02
55.00	3.1925000e+11	2.8097000e+11	2.6127000e+11	2.3191115e+11	55.00	9.840379e-02	6.3300007e-02	4.0172511e-02	2.7111111e-02
56.00	3.2070000e+11	2.8217500e+11	2.6257500e+11	2.3311115e+11	56.00	9.840379e-02	6.3300007e-02	4.0172511e-02	2.7111111e-02
57.00	3.2215000e+11	2.8338000e+11	2.6388000e+11	2.3431115e+11	57.00	9.840379e-02	6.3300007e-02	4.0172511e-02	2.7111111e-02
58.00	3.2360000e+11	2.8458500e+11	2.6518500e+11	2.3551115e+11	58.00	9.840379e-02	6.3300007e-02	4.0172511e-02	2.7111111e-02
59.00	3.2505000e+11	2.8579000e+11	2.6649000e+11	2.3671115e+11	59.00	9.840379e-02	6.3300007e-02	4.0172511e-02	2.7111111e-02
60.00	3.2650000e+11	2.8699500e+11	2.6779500e+11	2.3791115e+11	60.00	9.840379e-02	6.3300007e-02	4.0172511e-02	2.7111111e-02





TABLE B17. NORMALIZED PHASE MATRIX FOR TYPE B AEROSOLS.  $M=1.50-0.011$ ,  $R_0=0.064$ ,  $W=5.0$ ,  $1+0.300$ 

SCATTERING ANGLE	11	12	13	14	15	16
0.00	1.417095E+00	1.417095E+00	1.417095E+00	-1.153030E-02	9.837330E-02	6.503209E-02
1.00	1.414904E+00	1.414904E+00	1.414904E+00	-2.973635E-05	9.837330E-02	6.492180E-02
2.00	1.408187E+00	1.408187E+00	1.408187E+00	-1.153030E-02	9.837330E-02	6.478151E-02
3.00	1.392419E+00	1.392419E+00	1.392419E+00	-2.973635E-05	9.837330E-02	6.460130E-02
4.00	1.374704E+00	1.374704E+00	1.374704E+00	-1.153030E-02	9.837330E-02	6.438110E-02
5.00	1.354194E+00	1.354194E+00	1.354194E+00	-2.973635E-05	9.837330E-02	6.412090E-02
6.00	1.332828E+00	1.332828E+00	1.332828E+00	-1.153030E-02	9.837330E-02	6.382070E-02
7.00	1.310572E+00	1.310572E+00	1.310572E+00	-2.973635E-05	9.837330E-02	6.348050E-02
8.00	1.287326E+00	1.287326E+00	1.287326E+00	-1.153030E-02	9.837330E-02	6.310030E-02
9.00	1.263090E+00	1.263090E+00	1.263090E+00	-2.973635E-05	9.837330E-02	6.268010E-02
10.00	1.237854E+00	1.237854E+00	1.237854E+00	-1.153030E-02	9.837330E-02	6.222000E-02
11.00	1.211618E+00	1.211618E+00	1.211618E+00	-2.973635E-05	9.837330E-02	6.172000E-02
12.00	1.184382E+00	1.184382E+00	1.184382E+00	-1.153030E-02	9.837330E-02	6.118000E-02
13.00	1.156146E+00	1.156146E+00	1.156146E+00	-2.973635E-05	9.837330E-02	6.060000E-02
14.00	1.126910E+00	1.126910E+00	1.126910E+00	-1.153030E-02	9.837330E-02	6.000000E-02
15.00	1.096674E+00	1.096674E+00	1.096674E+00	-2.973635E-05	9.837330E-02	5.938000E-02
16.00	1.065438E+00	1.065438E+00	1.065438E+00	-1.153030E-02	9.837330E-02	5.874000E-02
17.00	1.033202E+00	1.033202E+00	1.033202E+00	-2.973635E-05	9.837330E-02	5.808000E-02
18.00	1.000066E+00	1.000066E+00	1.000066E+00	-1.153030E-02	9.837330E-02	5.740000E-02
19.00	9.669830E-01	9.669830E-01	9.669830E-01	-2.973635E-05	9.837330E-02	5.670000E-02
20.00	9.340594E-01	9.340594E-01	9.340594E-01	-1.153030E-02	9.837330E-02	5.600000E-02
21.00	9.012358E-01	9.012358E-01	9.012358E-01	-2.973635E-05	9.837330E-02	5.530000E-02
22.00	8.685122E-01	8.685122E-01	8.685122E-01	-1.153030E-02	9.837330E-02	5.460000E-02
23.00	8.358886E-01	8.358886E-01	8.358886E-01	-2.973635E-05	9.837330E-02	5.390000E-02
24.00	8.034650E-01	8.034650E-01	8.034650E-01	-1.153030E-02	9.837330E-02	5.320000E-02
25.00	7.712414E-01	7.712414E-01	7.712414E-01	-2.973635E-05	9.837330E-02	5.250000E-02
26.00	7.393178E-01	7.393178E-01	7.393178E-01	-1.153030E-02	9.837330E-02	5.180000E-02
27.00	7.076942E-01	7.076942E-01	7.076942E-01	-2.973635E-05	9.837330E-02	5.110000E-02
28.00	6.764706E-01	6.764706E-01	6.764706E-01	-1.153030E-02	9.837330E-02	5.040000E-02
29.00	6.456470E-01	6.456470E-01	6.456470E-01	-2.973635E-05	9.837330E-02	4.970000E-02
30.00	6.152234E-01	6.152234E-01	6.152234E-01	-1.153030E-02	9.837330E-02	4.900000E-02
31.00	5.852998E-01	5.852998E-01	5.852998E-01	-2.973635E-05	9.837330E-02	4.830000E-02
32.00	5.558762E-01	5.558762E-01	5.558762E-01	-1.153030E-02	9.837330E-02	4.760000E-02
33.00	5.269526E-01	5.269526E-01	5.269526E-01	-2.973635E-05	9.837330E-02	4.690000E-02
34.00	4.985290E-01	4.985290E-01	4.985290E-01	-1.153030E-02	9.837330E-02	4.620000E-02
35.00	4.706054E-01	4.706054E-01	4.706054E-01	-2.973635E-05	9.837330E-02	4.550000E-02
36.00	4.431818E-01	4.431818E-01	4.431818E-01	-1.153030E-02	9.837330E-02	4.480000E-02
37.00	4.162582E-01	4.162582E-01	4.162582E-01	-2.973635E-05	9.837330E-02	4.410000E-02
38.00	3.903346E-01	3.903346E-01	3.903346E-01	-1.153030E-02	9.837330E-02	4.340000E-02
39.00	3.654110E-01	3.654110E-01	3.654110E-01	-2.973635E-05	9.837330E-02	4.270000E-02
40.00	3.414874E-01	3.414874E-01	3.414874E-01	-1.153030E-02	9.837330E-02	4.200000E-02
41.00	3.185638E-01	3.185638E-01	3.185638E-01	-2.973635E-05	9.837330E-02	4.130000E-02
42.00	2.966402E-01	2.966402E-01	2.966402E-01	-1.153030E-02	9.837330E-02	4.060000E-02
43.00	2.757166E-01	2.757166E-01	2.757166E-01	-2.973635E-05	9.837330E-02	4.000000E-02
44.00	2.557930E-01	2.557930E-01	2.557930E-01	-1.153030E-02	9.837330E-02	3.940000E-02
45.00	2.368694E-01	2.368694E-01	2.368694E-01	-2.973635E-05	9.837330E-02	3.880000E-02
46.00	2.189458E-01	2.189458E-01	2.189458E-01	-1.153030E-02	9.837330E-02	3.820000E-02
47.00	2.020222E-01	2.020222E-01	2.020222E-01	-2.973635E-05	9.837330E-02	3.760000E-02
48.00	1.860986E-01	1.860986E-01	1.860986E-01	-1.153030E-02	9.837330E-02	3.700000E-02
49.00	1.711750E-01	1.711750E-01	1.711750E-01	-2.973635E-05	9.837330E-02	3.640000E-02
50.00	1.572514E-01	1.572514E-01	1.572514E-01	-1.153030E-02	9.837330E-02	3.580000E-02
51.00	1.443278E-01	1.443278E-01	1.443278E-01	-2.973635E-05	9.837330E-02	3.520000E-02
52.00	1.324042E-01	1.324042E-01	1.324042E-01	-1.153030E-02	9.837330E-02	3.460000E-02
53.00	1.214806E-01	1.214806E-01	1.214806E-01	-2.973635E-05	9.837330E-02	3.400000E-02
54.00	1.115570E-01	1.115570E-01	1.115570E-01	-1.153030E-02	9.837330E-02	3.340000E-02
55.00	1.026334E-01	1.026334E-01	1.026334E-01	-2.973635E-05	9.837330E-02	3.280000E-02
56.00	9.371098E-02	9.371098E-02	9.371098E-02	-1.153030E-02	9.837330E-02	3.220000E-02
57.00	8.479862E-02	8.479862E-02	8.479862E-02	-2.973635E-05	9.837330E-02	3.160000E-02
58.00	7.588626E-02	7.588626E-02	7.588626E-02	-1.153030E-02	9.837330E-02	3.100000E-02
59.00	6.697390E-02	6.697390E-02	6.697390E-02	-2.973635E-05	9.837330E-02	3.040000E-02
60.00	5.806154E-02	5.806154E-02	5.806154E-02	-1.153030E-02	9.837330E-02	3.000000E-02
61.00	5.014918E-02	5.014918E-02	5.014918E-02	-2.973635E-05	9.837330E-02	2.960000E-02
62.00	4.223682E-02	4.223682E-02	4.223682E-02	-1.153030E-02	9.837330E-02	2.920000E-02
63.00	3.432446E-02	3.432446E-02	3.432446E-02	-2.973635E-05	9.837330E-02	2.880000E-02
64.00	2.641210E-02	2.641210E-02	2.641210E-02	-1.153030E-02	9.837330E-02	2.840000E-02
65.00	1.850074E-02	1.850074E-02	1.850074E-02	-2.973635E-05	9.837330E-02	2.800000E-02
66.00	1.058838E-02	1.058838E-02	1.058838E-02	-1.153030E-02	9.837330E-02	2.760000E-02
67.00	2.641210E-02	2.641210E-02	2.641210E-02	-2.973635E-05	9.837330E-02	2.720000E-02
68.00	1.850074E-02	1.850074E-02	1.850074E-02	-1.153030E-02	9.837330E-02	2.680000E-02
69.00	1.058838E-02	1.058838E-02	1.058838E-02	-2.973635E-05	9.837330E-02	2.640000E-02
70.00	2.641210E-02	2.641210E-02	2.641210E-02	-1.153030E-02	9.837330E-02	2.600000E-02
71.00	1.850074E-02	1.850074E-02	1.850074E-02	-2.973635E-05	9.837330E-02	2.560000E-02
72.00	1.058838E-02	1.058838E-02	1.058838E-02	-1.153030E-02	9.837330E-02	2.520000E-02
73.00	2.641210E-02	2.641210E-02	2.641210E-02	-2.973635E-05	9.837330E-02	2.480000E-02
74.00	1.850074E-02	1.850074E-02	1.850074E-02	-1.153030E-02	9.837330E-02	2.440000E-02
75.00	1.058838E-02	1.058838E-02	1.058838E-02	-2.973635E-05	9.837330E-02	2.400000E-02
76.00	2.641210E-02	2.641210E-02	2.641210E-02	-1.153030E-02	9.837330E-02	2.360000E-02
77.00	1.850074E-02	1.850074E-02	1.850074E-02	-2.973635E-05	9.837330E-02	2.320000E-02
78.00	1.058838E-02	1.058838E-02	1.058838E-02	-1.153030E-02	9.837330E-02	2.280000E-02
79.00	2.641210E-02	2.641210E-02	2.641210E-02	-2.973635E-05	9.837330E-02	2.240000E-02
80.00	1.850074E-02	1.850074E-02	1.850074E-02	-1.153030E-02	9.837330E-02	2.200000E-02
81.00	1.058838E-02	1.058838E-02	1.058838E-02	-2.973635E-05	9.837330E-02	2.160000E-02
82.00	2.641210E-02	2.641210E-02	2.641210E-02	-1.153030E-02	9.837330E-02	2.120000E-02
83.00	1.850074E-02	1.850074E-02	1.850074E-02	-2.973635E-05	9.837330E-02	2.080000E-02
84.00	1.058838E-02	1.058838E-02	1.058838E-02	-1.153030E-02	9.837330E-02	2.040000E-02
85.00	2.641210E-02	2.641210E-02	2.641210E-02	-2.973635E-05	9.837330E-02	2.000000E-02
86.00	1.850074E-02	1.850074E-02	1.850074E-02	-1.153030E-02	9.837330E-02	1.960000E-02
87.00	1.058838E-02	1.058838E-02	1.058838E-02	-2.973635E-05	9.837330E-02	1.920000E-02
88.00	2.641210E-02	2.641210E-02	2.641210E-02	-1.153030E-02	9.837330E-02	1.880000E-02
89.00	1.850074E-02	1.850074E-02	1.850074E-02	-2.973635E-05	9.837330E-02	1.840000E-02
90.00	1.058838E-02	1.058838E-02	1.058838E-02	-1.153030E-02	9.837330E-02	1.800000E-02



TABLE B59. NORMALIZED PHASE MATRIX FOR TYPE B AEROSOLS.  $M=1.50-0.011$ ,  $R_0=0.06\mu m$ ,  $w=5.0$ ,  $\lambda=0.70\mu$ 

SCATTERING ANGLE	13	12	13	14	SCATTERING ANGLE	13	12	13	14
0.00	1.03097E+00	1.03097E+00	1.03097E+00	-0.933943E-06	60.00	1.03511E-01	6.00129E-02	7.26947E-02	-7.49774E-03
1.00	1.03091E+00	1.03091E+00	1.03091E+00	-1.010008E-05	62.00	9.56581E-02	6.00220E-02	6.53465E-02	-6.93493E-03
2.00	1.03085E+00	1.03085E+00	1.03085E+00	-1.036808E-05	64.00	9.08908E-02	6.00362E-02	6.04733E-02	-6.73449E-03
3.00	1.03079E+00	1.03079E+00	1.03079E+00	-1.064669E-05	66.00	8.57338E-02	6.00504E-02	5.56433E-02	-6.53560E-03
4.00	1.03073E+00	1.03073E+00	1.03073E+00	-1.092530E-05	68.00	8.05768E-02	6.00646E-02	5.08121E-02	-6.33671E-03
5.00	1.03067E+00	1.03067E+00	1.03067E+00	-1.120391E-05	70.00	7.54198E-02	6.00788E-02	4.59809E-02	-6.13782E-03
6.00	1.03061E+00	1.03061E+00	1.03061E+00	-1.148252E-05	72.00	7.02628E-02	6.00930E-02	4.11497E-02	-5.93893E-03
7.00	1.03055E+00	1.03055E+00	1.03055E+00	-1.176113E-05	74.00	6.51058E-02	6.01072E-02	3.63185E-02	-5.74006E-03
8.00	1.03049E+00	1.03049E+00	1.03049E+00	-1.203974E-05	76.00	6.00488E-02	6.01214E-02	3.14873E-02	-5.54119E-03
9.00	1.03043E+00	1.03043E+00	1.03043E+00	-1.231835E-05	78.00	5.49918E-02	6.01356E-02	2.66561E-02	-5.34232E-03
10.00	1.03037E+00	1.03037E+00	1.03037E+00	-1.259696E-05	80.00	4.99348E-02	6.01498E-02	2.18249E-02	-5.14345E-03
11.00	1.03031E+00	1.03031E+00	1.03031E+00	-1.287557E-05	82.00	4.48778E-02	6.01640E-02	1.69937E-02	-4.94458E-03
12.00	1.03025E+00	1.03025E+00	1.03025E+00	-1.315418E-05	84.00	3.98208E-02	6.01782E-02	1.21625E-02	-4.74571E-03
13.00	1.03019E+00	1.03019E+00	1.03019E+00	-1.343279E-05	86.00	3.47638E-02	6.01924E-02	7.23113E-03	-4.54684E-03
14.00	1.03013E+00	1.03013E+00	1.03013E+00	-1.371140E-05	88.00	2.97068E-02	6.02066E-02	2.24601E-02	-4.34797E-03
15.00	1.03007E+00	1.03007E+00	1.03007E+00	-1.399001E-05	90.00	2.46498E-02	6.02208E-02	1.26089E-02	-4.14910E-03
16.00	1.03001E+00	1.03001E+00	1.03001E+00	-1.426862E-05	92.00	1.95928E-02	6.02350E-02	2.27597E-02	-3.95023E-03
17.00	1.02995E+00	1.02995E+00	1.02995E+00	-1.454723E-05	94.00	1.45358E-02	6.02492E-02	3.29105E-02	-3.75136E-03
18.00	1.02989E+00	1.02989E+00	1.02989E+00	-1.482584E-05	96.00	9.47918E-03	6.02634E-02	4.30613E-02	-3.55249E-03
19.00	1.02983E+00	1.02983E+00	1.02983E+00	-1.510445E-05	98.00	4.42338E-03	6.02776E-02	5.32121E-02	-3.35362E-03
20.00	1.02977E+00	1.02977E+00	1.02977E+00	-1.538306E-05	100.00	3.41758E-03	6.02918E-02	6.33629E-02	-3.15475E-03
21.00	1.02971E+00	1.02971E+00	1.02971E+00	-1.566167E-05	102.00	2.41178E-03	6.03060E-02	7.35137E-02	-2.95588E-03
22.00	1.02965E+00	1.02965E+00	1.02965E+00	-1.594028E-05	104.00	1.40598E-03	6.03202E-02	8.36645E-02	-2.75701E-03
23.00	1.02959E+00	1.02959E+00	1.02959E+00	-1.621889E-05	106.00	4.00018E-04	6.03344E-02	9.38153E-02	-2.55814E-03
24.00	1.02953E+00	1.02953E+00	1.02953E+00	-1.649750E-05	108.00	3.00438E-04	6.03486E-02	1.03923E-01	-2.35927E-03
25.00	1.02947E+00	1.02947E+00	1.02947E+00	-1.677611E-05	110.00	2.00858E-04	6.03628E-02	1.13893E-01	-2.16040E-03
26.00	1.02941E+00	1.02941E+00	1.02941E+00	-1.705472E-05	112.00	1.01278E-04	6.03770E-02	1.23863E-01	-1.96153E-03
27.00	1.02935E+00	1.02935E+00	1.02935E+00	-1.733333E-05	114.00	5.13198E-05	6.03912E-02	1.33833E-01	-1.76266E-03
28.00	1.02929E+00	1.02929E+00	1.02929E+00	-1.761194E-05	116.00	2.13618E-05	6.04054E-02	1.43803E-01	-1.56379E-03
29.00	1.02923E+00	1.02923E+00	1.02923E+00	-1.789055E-05	118.00	1.14038E-05	6.04196E-02	1.53773E-01	-1.36492E-03
30.00	1.02917E+00	1.02917E+00	1.02917E+00	-1.816916E-05	120.00	5.44308E-06	6.04338E-02	1.63743E-01	-1.16605E-03
31.00	1.02911E+00	1.02911E+00	1.02911E+00	-1.844777E-05	122.00	2.44728E-06	6.04480E-02	1.73713E-01	-9.6718E-04
32.00	1.02905E+00	1.02905E+00	1.02905E+00	-1.872638E-05	124.00	1.45148E-06	6.04622E-02	1.83683E-01	-7.6831E-04
33.00	1.02899E+00	1.02899E+00	1.02899E+00	-1.900499E-05	126.00	4.45568E-07	6.04764E-02	1.93653E-01	-5.6944E-04
34.00	1.02893E+00	1.02893E+00	1.02893E+00	-1.928360E-05	128.00	1.45988E-07	6.04906E-02	2.03623E-01	-3.7057E-04
35.00	1.02887E+00	1.02887E+00	1.02887E+00	-1.956221E-05	130.00	4.46408E-08	6.05048E-02	2.13593E-01	-1.7170E-04
36.00	1.02881E+00	1.02881E+00	1.02881E+00	-1.984082E-05	132.00	1.46828E-08	6.05190E-02	2.23563E-01	0.00000E+00
37.00	1.02875E+00	1.02875E+00	1.02875E+00	-2.011943E-05	134.00	4.47248E-09	6.05332E-02	2.33533E-01	2.00000E+00
38.00	1.02869E+00	1.02869E+00	1.02869E+00	-2.039804E-05	136.00	1.47668E-09	6.05474E-02	2.43503E-01	4.00000E+00
39.00	1.02863E+00	1.02863E+00	1.02863E+00	-2.067665E-05	138.00	4.48088E-10	6.05616E-02	2.53473E-01	6.00000E+00
40.00	1.02857E+00	1.02857E+00	1.02857E+00	-2.095526E-05	140.00	1.48508E-10	6.05758E-02	2.63443E-01	8.00000E+00
41.00	1.02851E+00	1.02851E+00	1.02851E+00	-2.123387E-05	142.00	4.49928E-11	6.05900E-02	2.73413E-01	1.00000E+01
42.00	1.02845E+00	1.02845E+00	1.02845E+00	-2.151248E-05	144.00	1.50348E-11	6.06042E-02	2.83383E-01	1.20000E+01
43.00	1.02839E+00	1.02839E+00	1.02839E+00	-2.179109E-05	146.00	4.50768E-12	6.06184E-02	2.93353E-01	1.40000E+01
44.00	1.02833E+00	1.02833E+00	1.02833E+00	-2.206970E-05	148.00	1.51188E-12	6.06326E-02	3.03323E-01	1.60000E+01
45.00	1.02827E+00	1.02827E+00	1.02827E+00	-2.234831E-05	150.00	4.51608E-13	6.06468E-02	3.13293E-01	1.80000E+01
46.00	1.02821E+00	1.02821E+00	1.02821E+00	-2.262692E-05	152.00	1.52028E-13	6.06610E-02	3.23263E-01	2.00000E+01
47.00	1.02815E+00	1.02815E+00	1.02815E+00	-2.290553E-05	154.00	4.52448E-14	6.06752E-02	3.33233E-01	2.20000E+01
48.00	1.02809E+00	1.02809E+00	1.02809E+00	-2.318414E-05	156.00	1.52868E-14	6.06894E-02	3.43203E-01	2.40000E+01
49.00	1.02803E+00	1.02803E+00	1.02803E+00	-2.346275E-05	158.00	4.53288E-15	6.07036E-02	3.53173E-01	2.60000E+01
50.00	1.02797E+00	1.02797E+00	1.02797E+00	-2.374136E-05	160.00	1.53708E-15	6.07178E-02	3.63143E-01	2.80000E+01
51.00	1.02791E+00	1.02791E+00	1.02791E+00	-2.401997E-05	162.00	4.54128E-16	6.07320E-02	3.73113E-01	3.00000E+01
52.00	1.02785E+00	1.02785E+00	1.02785E+00	-2.429858E-05	164.00	1.54548E-16	6.07462E-02	3.83083E-01	3.20000E+01
53.00	1.02779E+00	1.02779E+00	1.02779E+00	-2.457719E-05	166.00	4.54968E-17	6.07604E-02	3.93053E-01	3.40000E+01
54.00	1.02773E+00	1.02773E+00	1.02773E+00	-2.485580E-05	168.00	1.55388E-17	6.07746E-02	4.03023E-01	3.60000E+01
55.00	1.02767E+00	1.02767E+00	1.02767E+00	-2.513441E-05	170.00	4.55388E-18	6.07888E-02	4.12993E-01	3.80000E+01
56.00	1.02761E+00	1.02761E+00	1.02761E+00	-2.541302E-05	172.00	1.55808E-18	6.08030E-02	4.22963E-01	4.00000E+01
57.00	1.02755E+00	1.02755E+00	1.02755E+00	-2.569163E-05	174.00	4.56308E-19	6.08172E-02	4.32933E-01	4.20000E+01
58.00	1.02749E+00	1.02749E+00	1.02749E+00	-2.597024E-05	176.00	1.56728E-19	6.08314E-02	4.42903E-01	4.40000E+01
59.00	1.02743E+00	1.02743E+00	1.02743E+00	-2.624885E-05	178.00	4.57308E-20	6.08456E-02	4.52873E-01	4.60000E+01
60.00	1.02737E+00	1.02737E+00	1.02737E+00	-2.652746E-05	180.00	1.57728E-20	6.08598E-02	4.62843E-01	4.80000E+01

TABLE 220. NORMALIZED PHASE MATRIX FOR TYPE B AEROSOLS,  $M=3.50-0.01i$ ,  $R_1=0.06\mu m$ ,  $\nu=5.0$ ,  $\lambda=3.60\mu$

[illegible]

TABLE B23. NORMALIZED PHASE MATRIX FOR TYPE B AEROSOLS,  $M=1.55-0.01i$ ,  $R_1=0.06\mu$ ,  $\nu=4.5$ ,  $\lambda=0.45\mu$

SCATTERING ANGLE	11	12	13	14	15	16
0.00	3.18221E+00	3.15222E+00	3.15222E+00	-3.18382E+01	-3.18382E+01	-3.18382E+01
1.00	3.14931E+00	3.14931E+00	3.14931E+00	-2.17246E+00	-2.17246E+00	-2.17246E+00
2.00	3.05323E+00	3.05323E+00	3.05323E+00	-8.14238E+00	-8.14238E+00	-8.14238E+00
3.00	2.91649E+00	2.91649E+00	2.91649E+00	-1.65382E+01	-1.65382E+01	-1.65382E+01
4.00	2.75843E+00	2.75843E+00	2.75843E+00	-2.58325E+01	-2.58325E+01	-2.58325E+01
5.00	2.57935E+00	2.57935E+00	2.57935E+00	-3.37388E+01	-3.37388E+01	-3.37388E+01
6.00	2.37462E+00	2.37462E+00	2.37462E+00	-4.02728E+01	-4.02728E+01	-4.02728E+01
7.00	2.14725E+00	2.14725E+00	2.14725E+00	-4.67415E+01	-4.67415E+01	-4.67415E+01
8.00	1.89131E+00	1.89131E+00	1.89131E+00	-5.31726E+01	-5.31726E+01	-5.31726E+01
9.00	1.60511E+00	1.60511E+00	1.60511E+00	-5.95327E+01	-5.95327E+01	-5.95327E+01
10.00	1.29223E+00	1.29223E+00	1.29223E+00	-6.58156E+01	-6.58156E+01	-6.58156E+01
11.00	1.09131E+00	1.09131E+00	1.09131E+00	-7.20796E+01	-7.20796E+01	-7.20796E+01
12.00	9.22231E-01	9.22231E-01	9.22231E-01	-7.82876E+01	-7.82876E+01	-7.82876E+01
13.00	7.76051E-01	7.76051E-01	7.76051E-01	-8.44315E+01	-8.44315E+01	-8.44315E+01
14.00	6.50131E-01	6.50131E-01	6.50131E-01	-9.05327E+01	-9.05327E+01	-9.05327E+01
15.00	5.46021E-01	5.46021E-01	5.46021E-01	-9.65327E+01	-9.65327E+01	-9.65327E+01
16.00	4.62332E-01	4.62332E-01	4.62332E-01	-1.02431E+02	-1.02431E+02	-1.02431E+02
17.00	3.98322E-01	3.98322E-01	3.98322E-01	-1.08431E+02	-1.08431E+02	-1.08431E+02
18.00	3.46021E-01	3.46021E-01	3.46021E-01	-1.14431E+02	-1.14431E+02	-1.14431E+02
19.00	3.04322E-01	3.04322E-01	3.04322E-01	-1.20431E+02	-1.20431E+02	-1.20431E+02
20.00	2.72322E-01	2.72322E-01	2.72322E-01	-1.26431E+02	-1.26431E+02	-1.26431E+02
21.00	2.46021E-01	2.46021E-01	2.46021E-01	-1.32431E+02	-1.32431E+02	-1.32431E+02
22.00	2.24322E-01	2.24322E-01	2.24322E-01	-1.38431E+02	-1.38431E+02	-1.38431E+02
23.00	2.06021E-01	2.06021E-01	2.06021E-01	-1.44431E+02	-1.44431E+02	-1.44431E+02
24.00	1.90322E-01	1.90322E-01	1.90322E-01	-1.50431E+02	-1.50431E+02	-1.50431E+02
25.00	1.76021E-01	1.76021E-01	1.76021E-01	-1.56431E+02	-1.56431E+02	-1.56431E+02
26.00	1.63022E-01	1.63022E-01	1.63022E-01	-1.62431E+02	-1.62431E+02	-1.62431E+02
27.00	1.51022E-01	1.51022E-01	1.51022E-01	-1.68431E+02	-1.68431E+02	-1.68431E+02
28.00	1.40022E-01	1.40022E-01	1.40022E-01	-1.74431E+02	-1.74431E+02	-1.74431E+02
29.00	1.30022E-01	1.30022E-01	1.30022E-01	-1.80431E+02	-1.80431E+02	-1.80431E+02
30.00	1.21022E-01	1.21022E-01	1.21022E-01	-1.86431E+02	-1.86431E+02	-1.86431E+02
31.00	1.13022E-01	1.13022E-01	1.13022E-01	-1.92431E+02	-1.92431E+02	-1.92431E+02
32.00	1.06022E-01	1.06022E-01	1.06022E-01	-1.98431E+02	-1.98431E+02	-1.98431E+02
33.00	1.00022E-01	1.00022E-01	1.00022E-01	-2.04431E+02	-2.04431E+02	-2.04431E+02
34.00	9.22231E-02	9.22231E-02	9.22231E-02	-2.10431E+02	-2.10431E+02	-2.10431E+02
35.00	8.44315E-02	8.44315E-02	8.44315E-02	-2.16431E+02	-2.16431E+02	-2.16431E+02
36.00	7.82876E-02	7.82876E-02	7.82876E-02	-2.22431E+02	-2.22431E+02	-2.22431E+02
37.00	7.20796E-02	7.20796E-02	7.20796E-02	-2.28431E+02	-2.28431E+02	-2.28431E+02
38.00	6.58156E-02	6.58156E-02	6.58156E-02	-2.34431E+02	-2.34431E+02	-2.34431E+02
39.00	5.95327E-02	5.95327E-02	5.95327E-02	-2.40431E+02	-2.40431E+02	-2.40431E+02
40.00	5.31726E-02	5.31726E-02	5.31726E-02	-2.46431E+02	-2.46431E+02	-2.46431E+02
41.00	4.67415E-02	4.67415E-02	4.67415E-02	-2.52431E+02	-2.52431E+02	-2.52431E+02
42.00	4.02728E-02	4.02728E-02	4.02728E-02	-2.58431E+02	-2.58431E+02	-2.58431E+02
43.00	3.37388E-02	3.37388E-02	3.37388E-02	-2.64431E+02	-2.64431E+02	-2.64431E+02
44.00	2.75843E-02	2.75843E-02	2.75843E-02	-2.70431E+02	-2.70431E+02	-2.70431E+02
45.00	2.14725E-02	2.14725E-02	2.14725E-02	-2.76431E+02	-2.76431E+02	-2.76431E+02
46.00	1.56382E-02	1.56382E-02	1.56382E-02	-2.82431E+02	-2.82431E+02	-2.82431E+02
47.00	9.65327E-03	9.65327E-03	9.65327E-03	-2.88431E+02	-2.88431E+02	-2.88431E+02
48.00	3.65327E-03	3.65327E-03	3.65327E-03	-2.94431E+02	-2.94431E+02	-2.94431E+02
49.00	0.00000E+00	0.00000E+00	0.00000E+00	-3.00431E+02	-3.00431E+02	-3.00431E+02
50.00	0.00000E+00	0.00000E+00	0.00000E+00	-3.06431E+02	-3.06431E+02	-3.06431E+02

TABLE 222. NORMALIZED PHASE MATRIX FOR TYPE B AEROSOLS,  $m=1.55-0.01i$ ,  $R_p=0.06\mu m$ ,  $v=1.5$ ,  $\lambda=0.55\mu$ 

SCATTERING ANGLE	15	12	13	14	15	12	13	14
0.00	2.431337E+00	2.431337E+00	2.431337E+00	-2.431337E-01	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
1.00	2.336137E+00	2.336137E+00	2.336137E+00	-1.590790E-01	0.023224E-02	0.023224E-02	0.023224E-02	0.023224E-02
2.00	2.272280E+00	2.272280E+00	2.272280E+00	-6.612924E-01	0.042324E-02	0.042324E-02	0.042324E-02	0.042324E-02
3.00	2.222800E+00	2.222800E+00	2.222800E+00	-1.274720E-01	0.060424E-02	0.060424E-02	0.060424E-02	0.060424E-02
4.00	2.180400E+00	2.180400E+00	2.180400E+00	-2.830311E-01	0.078524E-02	0.078524E-02	0.078524E-02	0.078524E-02
5.00	2.140400E+00	2.140400E+00	2.140400E+00	-5.129300E-01	0.096624E-02	0.096624E-02	0.096624E-02	0.096624E-02
6.00	2.100400E+00	2.100400E+00	2.100400E+00	-7.428290E-01	0.114724E-02	0.114724E-02	0.114724E-02	0.114724E-02
7.00	2.060400E+00	2.060400E+00	2.060400E+00	-9.727280E-01	0.132824E-02	0.132824E-02	0.132824E-02	0.132824E-02
8.00	2.020400E+00	2.020400E+00	2.020400E+00	-1.201719E-01	0.150924E-02	0.150924E-02	0.150924E-02	0.150924E-02
9.00	1.980400E+00	1.980400E+00	1.980400E+00	-1.430708E-01	0.169024E-02	0.169024E-02	0.169024E-02	0.169024E-02
10.00	1.940400E+00	1.940400E+00	1.940400E+00	-1.659697E-01	0.187124E-02	0.187124E-02	0.187124E-02	0.187124E-02
11.00	1.900400E+00	1.900400E+00	1.900400E+00	-1.888686E-01	0.205224E-02	0.205224E-02	0.205224E-02	0.205224E-02
12.00	1.860400E+00	1.860400E+00	1.860400E+00	-2.117675E-01	0.223324E-02	0.223324E-02	0.223324E-02	0.223324E-02
13.00	1.820400E+00	1.820400E+00	1.820400E+00	-2.346664E-01	0.241424E-02	0.241424E-02	0.241424E-02	0.241424E-02
14.00	1.780400E+00	1.780400E+00	1.780400E+00	-2.575653E-01	0.259524E-02	0.259524E-02	0.259524E-02	0.259524E-02
15.00	1.740400E+00	1.740400E+00	1.740400E+00	-2.804642E-01	0.277624E-02	0.277624E-02	0.277624E-02	0.277624E-02
16.00	1.700400E+00	1.700400E+00	1.700400E+00	-3.033631E-01	0.295724E-02	0.295724E-02	0.295724E-02	0.295724E-02
17.00	1.660400E+00	1.660400E+00	1.660400E+00	-3.262620E-01	0.313824E-02	0.313824E-02	0.313824E-02	0.313824E-02
18.00	1.620400E+00	1.620400E+00	1.620400E+00	-3.491609E-01	0.331924E-02	0.331924E-02	0.331924E-02	0.331924E-02
19.00	1.580400E+00	1.580400E+00	1.580400E+00	-3.720598E-01	0.350024E-02	0.350024E-02	0.350024E-02	0.350024E-02
20.00	1.540400E+00	1.540400E+00	1.540400E+00	-3.949587E-01	0.368124E-02	0.368124E-02	0.368124E-02	0.368124E-02
21.00	1.500400E+00	1.500400E+00	1.500400E+00	-4.178576E-01	0.386224E-02	0.386224E-02	0.386224E-02	0.386224E-02
22.00	1.460400E+00	1.460400E+00	1.460400E+00	-4.407565E-01	0.404324E-02	0.404324E-02	0.404324E-02	0.404324E-02
23.00	1.420400E+00	1.420400E+00	1.420400E+00	-4.636554E-01	0.422424E-02	0.422424E-02	0.422424E-02	0.422424E-02
24.00	1.380400E+00	1.380400E+00	1.380400E+00	-4.865543E-01	0.440524E-02	0.440524E-02	0.440524E-02	0.440524E-02
25.00	1.340400E+00	1.340400E+00	1.340400E+00	-5.094532E-01	0.458624E-02	0.458624E-02	0.458624E-02	0.458624E-02
26.00	1.300400E+00	1.300400E+00	1.300400E+00	-5.323521E-01	0.476724E-02	0.476724E-02	0.476724E-02	0.476724E-02
27.00	1.260400E+00	1.260400E+00	1.260400E+00	-5.552510E-01	0.494824E-02	0.494824E-02	0.494824E-02	0.494824E-02
28.00	1.220400E+00	1.220400E+00	1.220400E+00	-5.781499E-01	0.512924E-02	0.512924E-02	0.512924E-02	0.512924E-02
29.00	1.180400E+00	1.180400E+00	1.180400E+00	-6.010488E-01	0.531024E-02	0.531024E-02	0.531024E-02	0.531024E-02
30.00	1.140400E+00	1.140400E+00	1.140400E+00	-6.239477E-01	0.549124E-02	0.549124E-02	0.549124E-02	0.549124E-02
31.00	1.100400E+00	1.100400E+00	1.100400E+00	-6.468466E-01	0.567224E-02	0.567224E-02	0.567224E-02	0.567224E-02
32.00	1.060400E+00	1.060400E+00	1.060400E+00	-6.697455E-01	0.585324E-02	0.585324E-02	0.585324E-02	0.585324E-02
33.00	1.020400E+00	1.020400E+00	1.020400E+00	-6.926444E-01	0.603424E-02	0.603424E-02	0.603424E-02	0.603424E-02
34.00	0.980400E+00	0.980400E+00	0.980400E+00	-7.155433E-01	0.621524E-02	0.621524E-02	0.621524E-02	0.621524E-02
35.00	0.940400E+00	0.940400E+00	0.940400E+00	-7.384422E-01	0.639624E-02	0.639624E-02	0.639624E-02	0.639624E-02
36.00	0.900400E+00	0.900400E+00	0.900400E+00	-7.613411E-01	0.657724E-02	0.657724E-02	0.657724E-02	0.657724E-02
37.00	0.860400E+00	0.860400E+00	0.860400E+00	-7.842400E-01	0.675824E-02	0.675824E-02	0.675824E-02	0.675824E-02
38.00	0.820400E+00	0.820400E+00	0.820400E+00	-8.071389E-01	0.693924E-02	0.693924E-02	0.693924E-02	0.693924E-02
39.00	0.780400E+00	0.780400E+00	0.780400E+00	-8.300378E-01	0.712024E-02	0.712024E-02	0.712024E-02	0.712024E-02
40.00	0.740400E+00	0.740400E+00	0.740400E+00	-8.529367E-01	0.730124E-02	0.730124E-02	0.730124E-02	0.730124E-02
41.00	0.700400E+00	0.700400E+00	0.700400E+00	-8.758356E-01	0.748224E-02	0.748224E-02	0.748224E-02	0.748224E-02
42.00	0.660400E+00	0.660400E+00	0.660400E+00	-8.987345E-01	0.766324E-02	0.766324E-02	0.766324E-02	0.766324E-02
43.00	0.620400E+00	0.620400E+00	0.620400E+00	-9.216334E-01	0.784424E-02	0.784424E-02	0.784424E-02	0.784424E-02
44.00	0.580400E+00	0.580400E+00	0.580400E+00	-9.445323E-01	0.802524E-02	0.802524E-02	0.802524E-02	0.802524E-02
45.00	0.540400E+00	0.540400E+00	0.540400E+00	-9.674312E-01	0.820624E-02	0.820624E-02	0.820624E-02	0.820624E-02
46.00	0.500400E+00	0.500400E+00	0.500400E+00	-9.903301E-01	0.838724E-02	0.838724E-02	0.838724E-02	0.838724E-02
47.00	0.460400E+00	0.460400E+00	0.460400E+00	-1.017289E-01	0.856824E-02	0.856824E-02	0.856824E-02	0.856824E-02
48.00	0.420400E+00	0.420400E+00	0.420400E+00	-1.040278E-01	0.874924E-02	0.874924E-02	0.874924E-02	0.874924E-02
49.00	0.380400E+00	0.380400E+00	0.380400E+00	-1.063267E-01	0.893024E-02	0.893024E-02	0.893024E-02	0.893024E-02
50.00	0.340400E+00	0.340400E+00	0.340400E+00	-1.086256E-01	0.911124E-02	0.911124E-02	0.911124E-02	0.911124E-02
51.00	0.300400E+00	0.300400E+00	0.300400E+00	-1.109245E-01	0.929224E-02	0.929224E-02	0.929224E-02	0.929224E-02
52.00	0.260400E+00	0.260400E+00	0.260400E+00	-1.132234E-01	0.947324E-02	0.947324E-02	0.947324E-02	0.947324E-02
53.00	0.220400E+00	0.220400E+00	0.220400E+00	-1.155223E-01	0.965424E-02	0.965424E-02	0.965424E-02	0.965424E-02
54.00	0.180400E+00	0.180400E+00	0.180400E+00	-1.178212E-01	0.983524E-02	0.983524E-02	0.983524E-02	0.983524E-02
55.00	0.140400E+00	0.140400E+00	0.140400E+00	-1.201201E-01	0.101624E-01	0.101624E-01	0.101624E-01	0.101624E-01

TABLE 5.3. NORMALIZED PHASE MATRIX FOR TYPE B AEROSOLS,  $M=1.55-0.011$ ,  $R_1=0.06M$ ,  $W=1.5$ ,  $\lambda=0.70$ 

SCATTERING ANGLE	11	12	13	14	SCATTERING ANGLE	11	12	13	14
0.00	2.33931E+00	2.53331E+00	2.53931E+00	-2.81235E-13	60.00	-0.07231E+02	5.04624E-02	6.00139E-02	-7.08969E-03
1.00	2.29051E+00	2.52707E+00	2.52907E+00	0.09066E-06	62.00	8.50533E-02	5.01706E-02	6.07042E-02	-7.37704E-03
2.00	2.02711E+00	2.40221E+00	2.40221E+00	-6.21312E-10	64.00	7.00430E-02	5.28624E-02	5.48827E-02	-6.78075E-03
3.00	2.04643E+00	2.46651E+00	2.46647E+00	-9.21779E-10	66.00	7.50047E-02	4.89270E-02	5.29337E-02	-6.15654E-03
4.00	2.10123E+00	2.38823E+00	2.38813E+00	-1.51322E-13	68.00	7.00430E-02	5.28624E-02	5.48827E-02	-6.78075E-03
5.00	2.21701E+00	2.30299E+00	2.30299E+00	-2.21321E-13	70.00	6.65027E-02	1.97068E-02	6.35195E-02	-5.07015E-03
6.00	2.21701E+00	2.30299E+00	2.30299E+00	-2.21321E-13	72.00	6.65027E-02	1.97068E-02	6.35195E-02	-5.07015E-03
7.00	2.12313E+00	2.21701E+00	2.21701E+00	-2.51330E-13	74.00	5.93536E-02	3.29174E-02	1.60439E-02	-4.07623E-03
8.00	2.12313E+00	2.21701E+00	2.21701E+00	-2.51330E-13	76.00	5.93536E-02	3.29174E-02	1.60439E-02	-4.07623E-03
9.00	2.12313E+00	2.21701E+00	2.21701E+00	-2.51330E-13	78.00	5.93536E-02	3.29174E-02	1.60439E-02	-4.07623E-03
10.00	1.95909E+00	1.95909E+00	1.95909E+00	-6.74931E-13	80.00	5.32017E-02	2.45715E-02	2.45715E-02	-2.21321E-13
11.00	1.98222E+00	1.88222E+00	1.88222E+00	-5.12151E-13	82.00	4.79530E-02	2.10701E-02	2.10701E-02	-2.10701E-13
12.00	1.81213E+00	1.81213E+00	1.81213E+00	-5.33008E-13	84.00	4.26571E-02	1.75715E-02	1.75715E-02	-1.75715E-13
13.00	1.76924E+00	1.76924E+00	1.76924E+00	-5.73304E-13	86.00	4.26571E-02	1.75715E-02	1.75715E-02	-1.75715E-13
14.00	1.69327E+00	1.69327E+00	1.69327E+00	-5.97071E-13	88.00	4.26571E-02	1.75715E-02	1.75715E-02	-1.75715E-13
15.00	1.66333E+00	1.66333E+00	1.66333E+00	-6.13304E-13	90.00	4.26571E-02	1.75715E-02	1.75715E-02	-1.75715E-13
16.00	1.59087E+00	1.59087E+00	1.59087E+00	-6.31702E-13	92.00	3.72410E-02	1.50439E-02	1.50439E-02	-0.71330E-03
17.00	1.58311E+00	1.58311E+00	1.58311E+00	-6.31702E-13	94.00	3.72410E-02	1.50439E-02	1.50439E-02	-0.71330E-03
18.00	1.52155E+00	1.52155E+00	1.52155E+00	-6.31702E-13	96.00	3.72410E-02	1.50439E-02	1.50439E-02	-0.71330E-03
19.00	1.48222E+00	1.48222E+00	1.48222E+00	-6.31702E-13	98.00	3.72410E-02	1.50439E-02	1.50439E-02	-0.71330E-03
20.00	1.45959E+00	1.45959E+00	1.45959E+00	-6.31702E-13	100.00	3.72410E-02	1.50439E-02	1.50439E-02	-0.71330E-03
21.00	1.45959E+00	1.45959E+00	1.45959E+00	-6.31702E-13	102.00	3.72410E-02	1.50439E-02	1.50439E-02	-0.71330E-03
22.00	1.45959E+00	1.45959E+00	1.45959E+00	-6.31702E-13	104.00	3.72410E-02	1.50439E-02	1.50439E-02	-0.71330E-03
23.00	1.45959E+00	1.45959E+00	1.45959E+00	-6.31702E-13	106.00	3.72410E-02	1.50439E-02	1.50439E-02	-0.71330E-03
24.00	1.45959E+00	1.45959E+00	1.45959E+00	-6.31702E-13	108.00	3.72410E-02	1.50439E-02	1.50439E-02	-0.71330E-03
25.00	1.45959E+00	1.45959E+00	1.45959E+00	-6.31702E-13	110.00	3.72410E-02	1.50439E-02	1.50439E-02	-0.71330E-03
26.00	1.45959E+00	1.45959E+00	1.45959E+00	-6.31702E-13	112.00	3.72410E-02	1.50439E-02	1.50439E-02	-0.71330E-03
27.00	1.45959E+00	1.45959E+00	1.45959E+00	-6.31702E-13	114.00	3.72410E-02	1.50439E-02	1.50439E-02	-0.71330E-03
28.00	1.45959E+00	1.45959E+00	1.45959E+00	-6.31702E-13	116.00	3.72410E-02	1.50439E-02	1.50439E-02	-0.71330E-03
29.00	1.45959E+00	1.45959E+00	1.45959E+00	-6.31702E-13	118.00	3.72410E-02	1.50439E-02	1.50439E-02	-0.71330E-03
30.00	1.45959E+00	1.45959E+00	1.45959E+00	-6.31702E-13	120.00	3.72410E-02	1.50439E-02	1.50439E-02	-0.71330E-03
31.00	1.45959E+00	1.45959E+00	1.45959E+00	-6.31702E-13	122.00	3.72410E-02	1.50439E-02	1.50439E-02	-0.71330E-03
32.00	1.45959E+00	1.45959E+00	1.45959E+00	-6.31702E-13	124.00	3.72410E-02	1.50439E-02	1.50439E-02	-0.71330E-03
33.00	1.45959E+00	1.45959E+00	1.45959E+00	-6.31702E-13	126.00	3.72410E-02	1.50439E-02	1.50439E-02	-0.71330E-03
34.00	1.45959E+00	1.45959E+00	1.45959E+00	-6.31702E-13	128.00	3.72410E-02	1.50439E-02	1.50439E-02	-0.71330E-03
35.00	1.45959E+00	1.45959E+00	1.45959E+00	-6.31702E-13	130.00	3.72410E-02	1.50439E-02	1.50439E-02	-0.71330E-03
36.00	1.45959E+00	1.45959E+00	1.45959E+00	-6.31702E-13	132.00	3.72410E-02	1.50439E-02	1.50439E-02	-0.71330E-03
37.00	1.45959E+00	1.45959E+00	1.45959E+00	-6.31702E-13	134.00	3.72410E-02	1.50439E-02	1.50439E-02	-0.71330E-03
38.00	1.45959E+00	1.45959E+00	1.45959E+00	-6.31702E-13	136.00	3.72410E-02	1.50439E-02	1.50439E-02	-0.71330E-03
39.00	1.45959E+00	1.45959E+00	1.45959E+00	-6.31702E-13	138.00	3.72410E-02	1.50439E-02	1.50439E-02	-0.71330E-03
40.00	1.45959E+00	1.45959E+00	1.45959E+00	-6.31702E-13	140.00	3.72410E-02	1.50439E-02	1.50439E-02	-0.71330E-03
41.00	1.45959E+00	1.45959E+00	1.45959E+00	-6.31702E-13	142.00	3.72410E-02	1.50439E-02	1.50439E-02	-0.71330E-03
42.00	1.45959E+00	1.45959E+00	1.45959E+00	-6.31702E-13	144.00	3.72410E-02	1.50439E-02	1.50439E-02	-0.71330E-03
43.00	1.45959E+00	1.45959E+00	1.45959E+00	-6.31702E-13	146.00	3.72410E-02	1.50439E-02	1.50439E-02	-0.71330E-03
44.00	1.45959E+00	1.45959E+00	1.45959E+00	-6.31702E-13	148.00	3.72410E-02	1.50439E-02	1.50439E-02	-0.71330E-03
45.00	1.45959E+00	1.45959E+00	1.45959E+00	-6.31702E-13	150.00	3.72410E-02	1.50439E-02	1.50439E-02	-0.71330E-03
46.00	1.45959E+00	1.45959E+00	1.45959E+00	-6.31702E-13	152.00	3.72410E-02	1.50439E-02	1.50439E-02	-0.71330E-03
47.00	1.45959E+00	1.45959E+00	1.45959E+00	-6.31702E-13	154.00	3.72410E-02	1.50439E-02	1.50439E-02	-0.71330E-03
48.00	1.45959E+00	1.45959E+00	1.45959E+00	-6.31702E-13	156.00	3.72410E-02	1.50439E-02	1.50439E-02	-0.71330E-03
49.00	1.45959E+00	1.45959E+00	1.45959E+00	-6.31702E-13	158.00	3.72410E-02	1.50439E-02	1.50439E-02	-0.71330E-03
50.00	1.45959E+00	1.45959E+00	1.45959E+00	-6.31702E-13	160.00	3.72410E-02	1.50439E-02	1.50439E-02	-0.71330E-03
51.00	1.45959E+00	1.45959E+00	1.45959E+00	-6.31702E-13	162.00	3.72410E-02	1.50439E-02	1.50439E-02	-0.71330E-03
52.00	1.45959E+00	1.45959E+00	1.45959E+00	-6.31702E-13	164.00	3.72410E-02	1.50439E-02	1.50439E-02	-0.71330E-03
53.00	1.45959E+00	1.45959E+00	1.45959E+00	-6.31702E-13	166.00	3.72410E-02	1.50439E-02	1.50439E-02	-0.71330E-03
54.00	1.45959E+00	1.45959E+00	1.45959E+00	-6.31702E-13	168.00	3.72410E-02	1.50439E-02	1.50439E-02	-0.71330E-03
55.00	1.45959E+00	1.45959E+00	1.45959E+00	-6.31702E-13	170.00	3.72410E-02	1.50439E-02	1.50439E-02	-0.71330E-03
56.00	1.45959E+00	1.45959E+00	1.45959E+00	-6.31702E-13	172.00	3.72410E-02	1.50439E-02	1.50439E-02	-0.71330E-03
57.00	1.45959E+00	1.45959E+00	1.45959E+00	-6.31702E-13	174.00	3.72410E-02	1.50439E-02	1.50439E-02	-0.71330E-03
58.00	1.45959E+00	1.45959E+00	1.45959E+00	-6.31702E-13	176.00	3.72410E-02	1.50439E-02	1.50439E-02	-0.71330E-03
59.00	1.45959E+00	1.45959E+00	1.45959E+00	-6.31702E-13	178.00	3.72410E-02	1.50439E-02	1.50439E-02	-0.71330E-03
60.00	1.45959E+00	1.45959E+00	1.45959E+00	-6.31702E-13	180.00	3.72410E-02	1.50439E-02	1.50439E-02	-0.71330E-03

TABLE 204. NORMALIZED PHASE MATRIX FOR TYPE B AEROSOLS.  $M=1.55-0.011$ ,  $R_2=0.004$ ,  $V=0.5$ ,  $1.02, 60^\circ$ .

SCATTERING ANGLE	11	12	13	14
0.00	1.780725E+00	1.780725E+00	1.780725E+00	-1.970488E-15
0.01	1.780725E+00	1.780725E+00	1.780725E+00	-3.594815E-05
0.02	1.780725E+00	1.780725E+00	1.780725E+00	-6.229594E-05
0.03	1.780725E+00	1.780725E+00	1.780725E+00	-8.864925E-05
0.04	1.780725E+00	1.780725E+00	1.780725E+00	-1.151870E-04
0.05	1.780725E+00	1.780725E+00	1.780725E+00	-1.416815E-04
0.06	1.780725E+00	1.780725E+00	1.780725E+00	-1.681760E-04
0.07	1.780725E+00	1.780725E+00	1.780725E+00	-1.946705E-04
0.08	1.780725E+00	1.780725E+00	1.780725E+00	-2.211650E-04
0.09	1.780725E+00	1.780725E+00	1.780725E+00	-2.476595E-04
0.10	1.780725E+00	1.780725E+00	1.780725E+00	-2.741540E-04
0.11	1.780725E+00	1.780725E+00	1.780725E+00	-3.006485E-04
0.12	1.780725E+00	1.780725E+00	1.780725E+00	-3.271430E-04
0.13	1.780725E+00	1.780725E+00	1.780725E+00	-3.536375E-04
0.14	1.780725E+00	1.780725E+00	1.780725E+00	-3.801320E-04
0.15	1.780725E+00	1.780725E+00	1.780725E+00	-4.066265E-04
0.16	1.780725E+00	1.780725E+00	1.780725E+00	-4.331210E-04
0.17	1.780725E+00	1.780725E+00	1.780725E+00	-4.596155E-04
0.18	1.780725E+00	1.780725E+00	1.780725E+00	-4.861100E-04
0.19	1.780725E+00	1.780725E+00	1.780725E+00	-5.126045E-04
0.20	1.780725E+00	1.780725E+00	1.780725E+00	-5.390990E-04
0.21	1.780725E+00	1.780725E+00	1.780725E+00	-5.655935E-04
0.22	1.780725E+00	1.780725E+00	1.780725E+00	-5.920880E-04
0.23	1.780725E+00	1.780725E+00	1.780725E+00	-6.185825E-04
0.24	1.780725E+00	1.780725E+00	1.780725E+00	-6.450770E-04
0.25	1.780725E+00	1.780725E+00	1.780725E+00	-6.715715E-04
0.26	1.780725E+00	1.780725E+00	1.780725E+00	-6.980660E-04
0.27	1.780725E+00	1.780725E+00	1.780725E+00	-7.245605E-04
0.28	1.780725E+00	1.780725E+00	1.780725E+00	-7.510550E-04
0.29	1.780725E+00	1.780725E+00	1.780725E+00	-7.775495E-04
0.30	1.780725E+00	1.780725E+00	1.780725E+00	-8.040440E-04
0.31	1.780725E+00	1.780725E+00	1.780725E+00	-8.305385E-04
0.32	1.780725E+00	1.780725E+00	1.780725E+00	-8.570330E-04
0.33	1.780725E+00	1.780725E+00	1.780725E+00	-8.835275E-04
0.34	1.780725E+00	1.780725E+00	1.780725E+00	-9.100220E-04
0.35	1.780725E+00	1.780725E+00	1.780725E+00	-9.365165E-04
0.36	1.780725E+00	1.780725E+00	1.780725E+00	-9.630110E-04
0.37	1.780725E+00	1.780725E+00	1.780725E+00	-9.895055E-04
0.38	1.780725E+00	1.780725E+00	1.780725E+00	-1.016445E-03
0.39	1.780725E+00	1.780725E+00	1.780725E+00	-1.037835E-03
0.40	1.780725E+00	1.780725E+00	1.780725E+00	-1.059225E-03
0.41	1.780725E+00	1.780725E+00	1.780725E+00	-1.080615E-03
0.42	1.780725E+00	1.780725E+00	1.780725E+00	-1.102005E-03
0.43	1.780725E+00	1.780725E+00	1.780725E+00	-1.123395E-03
0.44	1.780725E+00	1.780725E+00	1.780725E+00	-1.144785E-03
0.45	1.780725E+00	1.780725E+00	1.780725E+00	-1.166175E-03
0.46	1.780725E+00	1.780725E+00	1.780725E+00	-1.187565E-03
0.47	1.780725E+00	1.780725E+00	1.780725E+00	-1.208955E-03
0.48	1.780725E+00	1.780725E+00	1.780725E+00	-1.230345E-03
0.49	1.780725E+00	1.780725E+00	1.780725E+00	-1.251735E-03
0.50	1.780725E+00	1.780725E+00	1.780725E+00	-1.273125E-03
0.51	1.780725E+00	1.780725E+00	1.780725E+00	-1.294515E-03
0.52	1.780725E+00	1.780725E+00	1.780725E+00	-1.315905E-03
0.53	1.780725E+00	1.780725E+00	1.780725E+00	-1.337295E-03
0.54	1.780725E+00	1.780725E+00	1.780725E+00	-1.358685E-03
0.55	1.780725E+00	1.780725E+00	1.780725E+00	-1.380075E-03
0.56	1.780725E+00	1.780725E+00	1.780725E+00	-1.401465E-03
0.57	1.780725E+00	1.780725E+00	1.780725E+00	-1.422855E-03
0.58	1.780725E+00	1.780725E+00	1.780725E+00	-1.444245E-03
0.59	1.780725E+00	1.780725E+00	1.780725E+00	-1.465635E-03
0.60	1.780725E+00	1.780725E+00	1.780725E+00	-1.487025E-03
0.61	1.780725E+00	1.780725E+00	1.780725E+00	-1.508415E-03
0.62	1.780725E+00	1.780725E+00	1.780725E+00	-1.529805E-03
0.63	1.780725E+00	1.780725E+00	1.780725E+00	-1.551195E-03
0.64	1.780725E+00	1.780725E+00	1.780725E+00	-1.572585E-03
0.65	1.780725E+00	1.780725E+00	1.780725E+00	-1.593975E-03
0.66	1.780725E+00	1.780725E+00	1.780725E+00	-1.615365E-03
0.67	1.780725E+00	1.780725E+00	1.780725E+00	-1.636755E-03
0.68	1.780725E+00	1.780725E+00	1.780725E+00	-1.658145E-03
0.69	1.780725E+00	1.780725E+00	1.780725E+00	-1.679535E-03
0.70	1.780725E+00	1.780725E+00	1.780725E+00	-1.700925E-03
0.71	1.780725E+00	1.780725E+00	1.780725E+00	-1.722315E-03
0.72	1.780725E+00	1.780725E+00	1.780725E+00	-1.743705E-03
0.73	1.780725E+00	1.780725E+00	1.780725E+00	-1.765095E-03
0.74	1.780725E+00	1.780725E+00	1.780725E+00	-1.786485E-03
0.75	1.780725E+00	1.780725E+00	1.780725E+00	-1.807875E-03
0.76	1.780725E+00	1.780725E+00	1.780725E+00	-1.829265E-03
0.77	1.780725E+00	1.780725E+00	1.780725E+00	-1.850655E-03
0.78	1.780725E+00	1.780725E+00	1.780725E+00	-1.872045E-03
0.79	1.780725E+00	1.780725E+00	1.780725E+00	-1.893435E-03
0.80	1.780725E+00	1.780725E+00	1.780725E+00	-1.914825E-03
0.81	1.780725E+00	1.780725E+00	1.780725E+00	-1.936215E-03
0.82	1.780725E+00	1.780725E+00	1.780725E+00	-1.957605E-03
0.83	1.780725E+00	1.780725E+00	1.780725E+00	-1.978995E-03
0.84	1.780725E+00	1.780725E+00	1.780725E+00	-2.000385E-03
0.85	1.780725E+00	1.780725E+00	1.780725E+00	-2.021775E-03
0.86	1.780725E+00	1.780725E+00	1.780725E+00	-2.043165E-03
0.87	1.780725E+00	1.780725E+00	1.780725E+00	-2.064555E-03
0.88	1.780725E+00	1.780725E+00	1.780725E+00	-2.085945E-03
0.89	1.780725E+00	1.780725E+00	1.780725E+00	-2.107335E-03
0.90	1.780725E+00	1.780725E+00	1.780725E+00	-2.128725E-03
0.91	1.780725E+00	1.780725E+00	1.780725E+00	-2.150115E-03
0.92	1.780725E+00	1.780725E+00	1.780725E+00	-2.171505E-03
0.93	1.780725E+00	1.780725E+00	1.780725E+00	-2.192895E-03
0.94	1.780725E+00	1.780725E+00	1.780725E+00	-2.214285E-03
0.95	1.780725E+00	1.780725E+00	1.780725E+00	-2.235675E-03
0.96	1.780725E+00	1.780725E+00	1.780725E+00	-2.257065E-03
0.97	1.780725E+00	1.780725E+00	1.780725E+00	-2.278455E-03
0.98	1.780725E+00	1.780725E+00	1.780725E+00	-2.299845E-03
0.99	1.780725E+00	1.780725E+00	1.780725E+00	-2.321235E-03
1.00	1.780725E+00	1.780725E+00	1.780725E+00	-2.342625E-03



TABLE B25. NORMALIZED PHASE MATRIX FOR TYPE B - 2050LS,  $M=1.55-0.011$ ,  $R_1=0.06M$ ,  $\lambda=5.0$ ,  $\lambda=0.45\mu$

SCATTERING ANGLE	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100										
0.00	1.1299000E+00	2.1390000E+00	3.1490000E+00	4.1590000E+00	5.1690000E+00	6.1790000E+00	7.1890000E+00	8.1990000E+00	9.2090000E+00	1.0200000E+01	1.1200000E+01	1.2200000E+01	1.3200000E+01	1.4200000E+01	1.5200000E+01	1.6200000E+01	1.7200000E+01	1.8200000E+01	1.9200000E+01	2.0200000E+01	2.1200000E+01	2.2200000E+01	2.3200000E+01	2.4200000E+01	2.5200000E+01	2.6200000E+01	2.7200000E+01	2.8200000E+01	2.9200000E+01	3.0200000E+01	3.1200000E+01	3.2200000E+01	3.3200000E+01	3.4200000E+01	3.5200000E+01	3.6200000E+01	3.7200000E+01	3.8200000E+01	3.9200000E+01	4.0200000E+01	4.1200000E+01	4.2200000E+01	4.3200000E+01	4.4200000E+01	4.5200000E+01	4.6200000E+01	4.7200000E+01	4.8200000E+01	4.9200000E+01	5.0200000E+01	5.1200000E+01	5.2200000E+01	5.3200000E+01	5.4200000E+01	5.5200000E+01	5.6200000E+01	5.7200000E+01	5.8200000E+01	5.9200000E+01	6.0200000E+01	6.1200000E+01	6.2200000E+01	6.3200000E+01	6.4200000E+01	6.5200000E+01	6.6200000E+01	6.7200000E+01	6.8200000E+01	6.9200000E+01	7.0200000E+01	7.1200000E+01	7.2200000E+01	7.3200000E+01	7.4200000E+01	7.5200000E+01	7.6200000E+01	7.7200000E+01	7.8200000E+01	7.9200000E+01	8.0200000E+01	8.1200000E+01	8.2200000E+01	8.3200000E+01	8.4200000E+01	8.5200000E+01	8.6200000E+01	8.7200000E+01	8.8200000E+01	8.9200000E+01	9.0200000E+01	9.1200000E+01	9.2200000E+01	9.3200000E+01	9.4200000E+01	9.5200000E+01	9.6200000E+01	9.7200000E+01	9.8200000E+01	9.9200000E+01	1.0000000E+02
0.10	1.146212E+00	2.156212E+00	3.166212E+00	4.176212E+00	5.186212E+00	6.196212E+00	7.206212E+00	8.216212E+00	9.226212E+00	1.0226212E+01	1.1226212E+01	1.2226212E+01	1.3226212E+01	1.4226212E+01	1.5226212E+01	1.6226212E+01	1.7226212E+01	1.8226212E+01	1.9226212E+01	2.0226212E+01	2.1226212E+01	2.2226212E+01	2.3226212E+01	2.4226212E+01	2.5226212E+01	2.6226212E+01	2.7226212E+01	2.8226212E+01	2.9226212E+01	3.0226212E+01	3.1226212E+01	3.2226212E+01	3.3226212E+01	3.4226212E+01	3.5226212E+01	3.6226212E+01	3.7226212E+01	3.8226212E+01	3.9226212E+01	4.0226212E+01	4.1226212E+01	4.2226212E+01	4.3226212E+01	4.4226212E+01	4.5226212E+01	4.6226212E+01	4.7226212E+01	4.8226212E+01	4.9226212E+01	5.0226212E+01	5.1226212E+01	5.2226212E+01	5.3226212E+01	5.4226212E+01	5.5226212E+01	5.6226212E+01	5.7226212E+01	5.8226212E+01	5.9226212E+01	6.0226212E+01	6.1226212E+01	6.2226212E+01	6.3226212E+01	6.4226212E+01	6.5226212E+01	6.6226212E+01	6.7226212E+01	6.8226212E+01	6.9226212E+01	7.0226212E+01	7.1226212E+01	7.2226212E+01	7.3226212E+01	7.4226212E+01	7.5226212E+01	7.6226212E+01	7.7226212E+01	7.8226212E+01	7.9226212E+01	8.0226212E+01	8.1226212E+01	8.2226212E+01	8.3226212E+01	8.4226212E+01	8.5226212E+01	8.6226212E+01	8.7226212E+01	8.8226212E+01	8.9226212E+01	9.0226212E+01	9.1226212E+01	9.2226212E+01	9.3226212E+01	9.4226212E+01	9.5226212E+01	9.6226212E+01	9.7226212E+01	9.8226212E+01	9.9226212E+01	1.0000000E+02
0.20	1.162524E+00	2.172524E+00	3.182524E+00	4.192524E+00	5.202524E+00	6.212524E+00	7.222524E+00	8.232524E+00	9.242524E+00	1.0249252E+01	1.1249252E+01	1.2249252E+01	1.3249252E+01	1.4249252E+01	1.5249252E+01	1.6249252E+01	1.7249252E+01	1.8249252E+01	1.9249252E+01	2.0249252E+01	2.1249252E+01	2.2249252E+01	2.3249252E+01	2.4249252E+01	2.5249252E+01	2.6249252E+01	2.7249252E+01	2.8249252E+01	2.9249252E+01	3.0249252E+01	3.1249252E+01	3.2249252E+01	3.3249252E+01	3.4249252E+01	3.5249252E+01	3.6249252E+01	3.7249252E+01	3.8249252E+01	3.9249252E+01	4.0249252E+01	4.1249252E+01	4.2249252E+01	4.3249252E+01	4.4249252E+01	4.5249252E+01	4.6249252E+01	4.7249252E+01	4.8249252E+01	4.9249252E+01	5.0249252E+01	5.1249252E+01	5.2249252E+01	5.3249252E+01	5.4249252E+01	5.5249252E+01	5.6249252E+01	5.7249252E+01	5.8249252E+01	5.9249252E+01	6.0249252E+01	6.1249252E+01	6.2249252E+01	6.3249252E+01	6.4249252E+01	6.5249252E+01	6.6249252E+01	6.7249252E+01	6.8249252E+01	6.9249252E+01	7.0249252E+01	7.1249252E+01	7.2249252E+01	7.3249252E+01	7.4249252E+01	7.5249252E+01	7.6249252E+01	7.7249252E+01	7.8249252E+01	7.9249252E+01	8.0249252E+01	8.1249252E+01	8.2249252E+01	8.3249252E+01	8.4249252E+01	8.5249252E+01	8.6249252E+01	8.7249252E+01	8.8249252E+01	8.9249252E+01	9.0249252E+01	9.1249252E+01	9.2249252E+01	9.3249252E+01	9.4249252E+01	9.5249252E+01	9.6249252E+01	9.7249252E+01	9.8249252E+01	9.9249252E+01	1.0000000E+02
0.30	1.178836E+00	2.188836E+00	3.198836E+00	4.208836E+00	5.218836E+00	6.228836E+00	7.238836E+00	8.248836E+00	9.258836E+00	1.0273264E+01	1.1273264E+01	1.2273264E+01	1.3273264E+01	1.4273264E+01	1.5273264E+01	1.6273264E+01	1.7273264E+01	1.8273264E+01	1.9273264E+01	2.0273264E+01	2.1273264E+01	2.2273264E+01	2.3273264E+01	2.4273264E+01	2.5273264E+01	2.6273264E+01	2.7273264E+01	2.8273264E+01	2.9273264E+01	3.0273264E+01	3.1273264E+01	3.2273264E+01	3.3273264E+01	3.4273264E+01	3.5273264E+01	3.6273264E+01	3.7273264E+01	3.8273264E+01	3.9273264E+01	4.0273264E+01	4.1273264E+01	4.2273264E+01	4.3273264E+01	4.4273264E+01	4.5273264E+01	4.6273264E+01	4.7273264E+01	4.8273264E+01	4.9273264E+01	5.0273264E+01	5.1273264E+01	5.2273264E+01	5.3273264E+01	5.4273264E+01	5.5273264E+01	5.6273264E+01	5.7273264E+01	5.8273264E+01	5.9273264E+01	6.0273264E+01	6.1273264E+01	6.2273264E+01	6.3273264E+01	6.4273264E+01	6.5273264E+01	6.6273264E+01	6.7273264E+01	6.8273264E+01	6.9273264E+01	7.0273264E+01	7.1273264E+01	7.2273264E+01	7.3273264E+01	7.4273264E+01	7.5273264E+01	7.6273264E+01	7.7273264E+01	7.8273264E+01	7.9273264E+01	8.0273264E+01	8.1273264E+01	8.2273264E+01	8.3273264E+01	8.4273264E+01	8.5273264E+01	8.6273264E+01	8.7273264E+01	8.8273264E+01	8.9273264E+01	9.0273264E+01	9.1273264E+01	9.2273264E+01	9.3273264E+01	9.4273264E+01	9.5273264E+01	9.6273264E+01	9.7273264E+01	9.8273264E+01	9.9273264E+01	1.0000000E+02
0.40	1.194752E+00	2.204752E+00	3.214752E+00	4.224752E+00	5.234752E+00	6.244752E+00	7.254752E+00	8.264752E+00	9.274752E+00	1.0300268E+01	1.1300268E+01	1.2300268E+01	1.3300268E+01	1.4300268E+01	1.5300268E+01	1.6300268E+01	1.7300268E+01	1.8300268E+01	1.9300268E+01	2.0300268E+01	2.1300268E+01	2.2300268E+01	2.3300268E+01	2.4300268E+01	2.5300268E+01	2.6300268E+01	2.7300268E+01	2.8300268E+01	2.9300268E+01	3.0300268E+01	3.1300268E+01	3.2300268E+01	3.3300268E+01	3.4300268E+01	3.5300268E+01	3.6300268E+01	3.7300268E+01	3.8300268E+01	3.9300268E+01	4.0300268E+01	4.1300268E+01	4.2300268E+01	4.3300268E+01	4.4300268E+01	4.5300268E+01	4.6300268E+01	4.7300268E+01	4.8300268E+01	4.9300268E+01	5.0300268E+01	5.1300268E+01	5.2300268E+01	5.3300268E+01	5.4300268E+01	5.5300268E+01	5.6300268E+01	5.7300268E+01	5.8300268E+01	5.9300268E+01	6.0300268E+01	6.1300268E+01	6.2300268E+01	6.3300268E+01	6.4300268E+01	6.5300268E+01	6.6300268E+01	6.7300268E+01	6.8300268E+01	6.9300268E+01	7.0300268E+01	7.1300268E+01	7.2300268E+01	7.3300268E+01	7.4300268E+01	7.5300268E+01	7.6300268E+01	7.7300268E+01	7.8300268E+01	7.9300268E+01	8.0300268E+01	8.1300268E+01	8.2300268E+01	8.3300268E+01	8.4300268E+01	8.5300268E+01	8.6300268E+01	8.7300268E+01	8.8300268E+01	8.9300268E+01	9.0300268E+01	9.1300268E+01	9.2300268E+01	9.3300268E+01	9.4300268E+01	9.5300268E+01	9.6300268E+01	9.7300268E+01	9.8300268E+01	9.9300268E+01	1.0000000E+02
0.50	1.213976E+00	2.223976E+00	3.233976E+00	4.243976E+00	5.253976E+00	6.263976E+00	7.273976E+00	8.283976E+00	9.293976E+00	1.0322272E+01	1.1322272E+01	1.2322272E+01	1.3322272E+01	1.4322272E+01	1.5322272E+01	1.6322272E+01	1.7322272E+01	1.8322272E+01	1.9322272E+01	2.0322272E+01	2.1322272E+01	2.2322272E+01	2.3322272E+01	2.4322272E+01	2.5322272E+01	2.6322272E+01	2.7322272E+01	2.8322272E+01	2.9322272E+01	3.0322272E+01	3.1322272E+01	3.2322272E+01	3.3322272E+01	3.4322272E+01	3.5322272E+01	3.6322272E+01	3.7322272E+01	3.8322272E+01	3.9322272E+01	4.0322272E+01	4.1322272E+01	4.2322272E+01	4.3322272E+01	4.4322272E+01	4.5322272E+01	4.6322272E+01	4.7322272E+01	4.8322272E+01	4.9322272E+01	5.0322272E+01	5.1322272E+01	5.2322272E+01	5.3322272E+01	5.4322272E+01	5.5322272E+01	5.6322272E+01	5.7322272E+01	5.8322272E+01	5.9322272E+01	6.0322272E+01	6.1322272E+01	6.2322272E+01	6.3322272E+01	6.4322272E+01	6.5322272E+01	6.6322272E+01	6.7322272E+01	6.8322272E+01	6.9322272E+01	7.0322272E+01	7.1322272E+01	7.2322272E+01	7.3322272E+01	7.4322272E+01	7.5322272E+01	7.6322272E+01	7.7322272E+01	7.8322272E+01	7.9322272E+01	8.0322272E+01	8.1322272E+01	8.2322272E+01	8.3322272E+01	8.4322272E+01	8.5322272E+01	8.6322272E+01	8.7322272E+01	8.8322272E+01	8.9322272E+01	9.0322272E+01	9.1322272E+01	9.2322272E+01	9.3322272E+01	9.4322272E+01	9.5322272E+01	9.6322272E+01	9.7322272E+01	9.8322272E+01	9.9322272E+01	1.0000000E+02
0.60	1.235528E+00	2.245528E+00	3.255528E+00	4.265528E+00	5.275528E+00	6.285528E+00	7.295528E+00	8.305528E+00	9.315528E+00	1.0344276E+01	1.1344276E+01	1.2344276E+01	1.3344276E+01	1.4344276E+01	1.5344276E+01	1.6344276E+01	1.7344276E+01	1.8344276E+01	1.9344276E+01	2.0344276E+01	2.1344276E+01	2.2344276E+01	2.3344276E+01	2.4344276E+01	2.5344276E+01	2.6344276E+01	2.7344276E+01	2.8344276E+01	2.9344276E+01	3.0344276E+01	3.1344276E+01	3.2344276E+01	3.3344276E+01	3.4344276E+01	3.5344276E+01	3.6344276E+01	3.7344276E+01	3.8344276E+01	3.9344276E+01	4.0344276E+01	4.1344276E+01	4.2344276E+01	4.3344276E+01	4.4344276E+01	4.5344276E+01	4.6344276E+01	4.7344276E+01	4.8344276E+01	4.9344276E+01	5.0344276E+01																																																		

TABLE 10A. NORMALIZED PHASE MATRIX FOR TYPE B AEROSOLS,  $m=1.55-0.011$ ,  $g_1=0.044$ ,  $v=5.0$ ,  $\lambda=0.55\mu$ 

SCATTERING ANGLE	11	12	13	14
0.00	1.00000000	1.00000000	1.00000000	1.00000000
0.10	1.07077600	1.07597600	1.07697600	1.07797600
0.20	1.07077600	1.07597600	1.07697600	1.07797600
0.30	1.06033100	1.06033100	1.06033100	1.06033100
0.40	1.04988600	1.04988600	1.04988600	1.04988600
0.50	1.03944100	1.03944100	1.03944100	1.03944100
0.60	1.02899600	1.02899600	1.02899600	1.02899600
0.70	1.01855100	1.01855100	1.01855100	1.01855100
0.80	1.00810600	1.00810600	1.00810600	1.00810600
0.90	0.99766100	0.99766100	0.99766100	0.99766100
1.00	0.98721600	0.98721600	0.98721600	0.98721600
1.10	0.97677100	0.97677100	0.97677100	0.97677100
1.20	0.96632600	0.96632600	0.96632600	0.96632600
1.30	0.95588100	0.95588100	0.95588100	0.95588100
1.40	0.94543600	0.94543600	0.94543600	0.94543600
1.50	0.93499100	0.93499100	0.93499100	0.93499100
1.60	0.92454600	0.92454600	0.92454600	0.92454600
1.70	0.91410100	0.91410100	0.91410100	0.91410100
1.80	0.90365600	0.90365600	0.90365600	0.90365600
1.90	0.89321100	0.89321100	0.89321100	0.89321100
2.00	0.88276600	0.88276600	0.88276600	0.88276600
2.10	0.87232100	0.87232100	0.87232100	0.87232100
2.20	0.86187600	0.86187600	0.86187600	0.86187600
2.30	0.85143100	0.85143100	0.85143100	0.85143100
2.40	0.84098600	0.84098600	0.84098600	0.84098600
2.50	0.83054100	0.83054100	0.83054100	0.83054100
2.60	0.82009600	0.82009600	0.82009600	0.82009600
2.70	0.80965100	0.80965100	0.80965100	0.80965100
2.80	0.79920600	0.79920600	0.79920600	0.79920600
2.90	0.78876100	0.78876100	0.78876100	0.78876100
3.00	0.77831600	0.77831600	0.77831600	0.77831600
3.10	0.76787100	0.76787100	0.76787100	0.76787100
3.20	0.75742600	0.75742600	0.75742600	0.75742600
3.30	0.74698100	0.74698100	0.74698100	0.74698100
3.40	0.73653600	0.73653600	0.73653600	0.73653600
3.50	0.72609100	0.72609100	0.72609100	0.72609100
3.60	0.71564600	0.71564600	0.71564600	0.71564600
3.70	0.70520100	0.70520100	0.70520100	0.70520100
3.80	0.69475600	0.69475600	0.69475600	0.69475600
3.90	0.68431100	0.68431100	0.68431100	0.68431100
4.00	0.67386600	0.67386600	0.67386600	0.67386600
4.10	0.66342100	0.66342100	0.66342100	0.66342100
4.20	0.65297600	0.65297600	0.65297600	0.65297600
4.30	0.64253100	0.64253100	0.64253100	0.64253100
4.40	0.63208600	0.63208600	0.63208600	0.63208600
4.50	0.62164100	0.62164100	0.62164100	0.62164100
4.60	0.61119600	0.61119600	0.61119600	0.61119600
4.70	0.60075100	0.60075100	0.60075100	0.60075100
4.80	0.59030600	0.59030600	0.59030600	0.59030600
4.90	0.57986100	0.57986100	0.57986100	0.57986100
5.00	0.56941600	0.56941600	0.56941600	0.56941600
5.10	0.55897100	0.55897100	0.55897100	0.55897100
5.20	0.54852600	0.54852600	0.54852600	0.54852600
5.30	0.53808100	0.53808100	0.53808100	0.53808100
5.40	0.52763600	0.52763600	0.52763600	0.52763600
5.50	0.51719100	0.51719100	0.51719100	0.51719100
5.60	0.50674600	0.50674600	0.50674600	0.50674600
5.70	0.49630100	0.49630100	0.49630100	0.49630100
5.80	0.48585600	0.48585600	0.48585600	0.48585600
5.90	0.47541100	0.47541100	0.47541100	0.47541100
6.00	0.46496600	0.46496600	0.46496600	0.46496600
6.10	0.45452100	0.45452100	0.45452100	0.45452100
6.20	0.44407600	0.44407600	0.44407600	0.44407600
6.30	0.43363100	0.43363100	0.43363100	0.43363100
6.40	0.42318600	0.42318600	0.42318600	0.42318600
6.50	0.41274100	0.41274100	0.41274100	0.41274100
6.60	0.40229600	0.40229600	0.40229600	0.40229600
6.70	0.39185100	0.39185100	0.39185100	0.39185100
6.80	0.38140600	0.38140600	0.38140600	0.38140600
6.90	0.37096100	0.37096100	0.37096100	0.37096100
7.00	0.36051600	0.36051600	0.36051600	0.36051600
7.10	0.35007100	0.35007100	0.35007100	0.35007100
7.20	0.33962600	0.33962600	0.33962600	0.33962600
7.30	0.32918100	0.32918100	0.32918100	0.32918100
7.40	0.31873600	0.31873600	0.31873600	0.31873600
7.50	0.30829100	0.30829100	0.30829100	0.30829100
7.60	0.29784600	0.29784600	0.29784600	0.29784600
7.70	0.28740100	0.28740100	0.28740100	0.28740100
7.80	0.27695600	0.27695600	0.27695600	0.27695600
7.90	0.26651100	0.26651100	0.26651100	0.26651100
8.00	0.25606600	0.25606600	0.25606600	0.25606600
8.10	0.24562100	0.24562100	0.24562100	0.24562100
8.20	0.23517600	0.23517600	0.23517600	0.23517600
8.30	0.22473100	0.22473100	0.22473100	0.22473100
8.40	0.21428600	0.21428600	0.21428600	0.21428600
8.50	0.20384100	0.20384100	0.20384100	0.20384100
8.60	0.19339600	0.19339600	0.19339600	0.19339600
8.70	0.18295100	0.18295100	0.18295100	0.18295100
8.80	0.17250600	0.17250600	0.17250600	0.17250600
8.90	0.16206100	0.16206100	0.16206100	0.16206100
9.00	0.15161600	0.15161600	0.15161600	0.15161600
9.10	0.14117100	0.14117100	0.14117100	0.14117100
9.20	0.13072600	0.13072600	0.13072600	0.13072600
9.30	0.12028100	0.12028100	0.12028100	0.12028100
9.40	0.10983600	0.10983600	0.10983600	0.10983600
9.50	0.09939100	0.09939100	0.09939100	0.09939100
9.60	0.08894600	0.08894600	0.08894600	0.08894600
9.70	0.07850100	0.07850100	0.07850100	0.07850100
9.80	0.06805600	0.06805600	0.06805600	0.06805600
9.90	0.05761100	0.05761100	0.05761100	0.05761100
10.00	0.04716600	0.04716600	0.04716600	0.04716600

TABLE 327. NORMALIZED PHASE MATRIX FOR TYPE B AEROSOLS,  $M=1.55-0.011$ ,  $K_0=0.064M$ ,  $v=5.0$ ,  $\lambda=0.70\mu$ 

SCATTERING ANGLE	11	12	13	14
0.00	1.00000000	1.00000000	1.00000000	1.00000000
1.00	1.020247600	1.020247600	1.020247600	1.020247600
2.00	1.039794900	1.039794900	1.039794900	1.039794900
3.00	1.059525600	1.059525600	1.059525600	1.059525600
4.00	1.079439600	1.079439600	1.079439600	1.079439600
5.00	1.099525600	1.099525600	1.099525600	1.099525600
6.00	1.119794900	1.119794900	1.119794900	1.119794900
7.00	1.139794900	1.139794900	1.139794900	1.139794900
8.00	1.159525600	1.159525600	1.159525600	1.159525600
9.00	1.179439600	1.179439600	1.179439600	1.179439600
10.00	1.199525600	1.199525600	1.199525600	1.199525600
11.00	1.219794900	1.219794900	1.219794900	1.219794900
12.00	1.239794900	1.239794900	1.239794900	1.239794900
13.00	1.259525600	1.259525600	1.259525600	1.259525600
14.00	1.279439600	1.279439600	1.279439600	1.279439600
15.00	1.299525600	1.299525600	1.299525600	1.299525600
16.00	1.319794900	1.319794900	1.319794900	1.319794900
17.00	1.339794900	1.339794900	1.339794900	1.339794900
18.00	1.359525600	1.359525600	1.359525600	1.359525600
19.00	1.379439600	1.379439600	1.379439600	1.379439600
20.00	1.399525600	1.399525600	1.399525600	1.399525600
21.00	1.419794900	1.419794900	1.419794900	1.419794900
22.00	1.439794900	1.439794900	1.439794900	1.439794900
23.00	1.459525600	1.459525600	1.459525600	1.459525600
24.00	1.479439600	1.479439600	1.479439600	1.479439600
25.00	1.499525600	1.499525600	1.499525600	1.499525600
26.00	1.519794900	1.519794900	1.519794900	1.519794900
27.00	1.539794900	1.539794900	1.539794900	1.539794900
28.00	1.559525600	1.559525600	1.559525600	1.559525600
29.00	1.579439600	1.579439600	1.579439600	1.579439600
30.00	1.599525600	1.599525600	1.599525600	1.599525600
31.00	1.619794900	1.619794900	1.619794900	1.619794900
32.00	1.639794900	1.639794900	1.639794900	1.639794900
33.00	1.659525600	1.659525600	1.659525600	1.659525600
34.00	1.679439600	1.679439600	1.679439600	1.679439600
35.00	1.699525600	1.699525600	1.699525600	1.699525600
36.00	1.719794900	1.719794900	1.719794900	1.719794900
37.00	1.739794900	1.739794900	1.739794900	1.739794900
38.00	1.759525600	1.759525600	1.759525600	1.759525600
39.00	1.779439600	1.779439600	1.779439600	1.779439600
40.00	1.799525600	1.799525600	1.799525600	1.799525600
41.00	1.819794900	1.819794900	1.819794900	1.819794900
42.00	1.839794900	1.839794900	1.839794900	1.839794900
43.00	1.859525600	1.859525600	1.859525600	1.859525600
44.00	1.879439600	1.879439600	1.879439600	1.879439600
45.00	1.899525600	1.899525600	1.899525600	1.899525600
46.00	1.919794900	1.919794900	1.919794900	1.919794900
47.00	1.939794900	1.939794900	1.939794900	1.939794900
48.00	1.959525600	1.959525600	1.959525600	1.959525600
49.00	1.979439600	1.979439600	1.979439600	1.979439600
50.00	1.999525600	1.999525600	1.999525600	1.999525600

TABLE 22B. NORMALIZED PHASE MATRIX FOR TYPE B AEROSOLS,  $M=2.55-0.03i$ ,  $R_1=0.66\mu m$ ,  $v=5.0$ ,  $\lambda=2.60\mu$

[illegible]

APPENDIX C.

Normalized Phase Matrices for Type A Aerosols

TABLE C3. NORMALIZED PHASE MATRIX FOR TYPE A AEROSOLS, MODEL 2CO,  $\lambda=0.45\mu$

[illegible]

TABLE C2. NORMALIZED PHASE MATRIX FOR TYPE A AEROSOLS, MODEL 200,  $\lambda=0.55\mu$

SCATTERING ANGLE	11	12	13	14
60.00	0.680100E+02	0.680100E+02	0.680100E+02	-0.256711E-13
61.00	0.700112E+02	0.700112E+02	0.700112E+02	-1.240441E-01
62.00	7.769964E+02	7.770148E+02	7.770103E+02	-4.780041E-01
63.00	6.845513E+02	6.845513E+02	6.845513E+02	-3.555710E-01
64.00	5.789939E+02	5.789939E+02	5.789939E+02	-1.537144E+00
65.00	5.331611E+02	5.331611E+02	5.331611E+02	-1.806331E+00
66.00	3.424731E+02	3.424731E+02	3.424731E+02	-1.987290E+00
67.00	3.265222E+02	3.265222E+02	3.265222E+02	-1.987290E+00
68.00	2.792658E+02	2.792658E+02	2.792658E+02	-1.587345E+00
69.00	2.735731E+02	2.735731E+02	2.735731E+02	-1.587345E+00
70.00	2.600011E+01	2.600011E+01	2.600011E+01	-1.137458E+00
71.00	6.607382E+02	6.607382E+02	6.607382E+02	-0.816311E-01
72.00	6.607382E+02	6.607382E+02	6.607382E+02	-0.816311E-01
73.00	5.180786E+01	5.180786E+01	5.180786E+01	-3.491827E-01
74.00	5.180786E+01	5.180786E+01	5.180786E+01	-3.491827E-01
75.00	4.720145E+01	4.720145E+01	4.720145E+01	-3.491827E-01
76.00	3.750425E+01	3.750425E+01	3.750425E+01	-1.187215E-01
77.00	3.750425E+01	3.750425E+01	3.750425E+01	-1.187215E-01
78.00	2.680275E+01	2.680275E+01	2.680275E+01	-2.391931E-01
79.00	2.680275E+01	2.680275E+01	2.680275E+01	-2.391931E-01
80.00	2.235023E+01	2.235023E+01	2.235023E+01	-0.892037E-01
81.00	1.070746E+01	1.070746E+01	1.070746E+01	-0.892037E-01
82.00	1.070746E+01	1.070746E+01	1.070746E+01	-0.892037E-01
83.00	1.070746E+01	1.070746E+01	1.070746E+01	-0.892037E-01
84.00	1.070746E+01	1.070746E+01	1.070746E+01	-0.892037E-01
85.00	1.070746E+01	1.070746E+01	1.070746E+01	-0.892037E-01
86.00	1.070746E+01	1.070746E+01	1.070746E+01	-0.892037E-01
87.00	1.070746E+01	1.070746E+01	1.070746E+01	-0.892037E-01
88.00	1.070746E+01	1.070746E+01	1.070746E+01	-0.892037E-01
89.00	1.070746E+01	1.070746E+01	1.070746E+01	-0.892037E-01
90.00	1.070746E+01	1.070746E+01	1.070746E+01	-0.892037E-01
91.00	1.070746E+01	1.070746E+01	1.070746E+01	-0.892037E-01
92.00	1.070746E+01	1.070746E+01	1.070746E+01	-0.892037E-01
93.00	1.070746E+01	1.070746E+01	1.070746E+01	-0.892037E-01
94.00	1.070746E+01	1.070746E+01	1.070746E+01	-0.892037E-01
95.00	1.070746E+01	1.070746E+01	1.070746E+01	-0.892037E-01
96.00	1.070746E+01	1.070746E+01	1.070746E+01	-0.892037E-01
97.00	1.070746E+01	1.070746E+01	1.070746E+01	-0.892037E-01
98.00	1.070746E+01	1.070746E+01	1.070746E+01	-0.892037E-01
99.00	1.070746E+01	1.070746E+01	1.070746E+01	-0.892037E-01
100.00	1.070746E+01	1.070746E+01	1.070746E+01	-0.892037E-01

TABLE C3. NORMALIZED PHASE MATRIX FOR TYPE A APPROX. MODEL 200, 100-700

M=0.5-0.001

SCATTERING ANGLE	11	12	13	14	15	16
0.0	6.02771E+02	6.02771E+02	6.02771E+02	6.02771E+02	6.02771E+02	6.02771E+02
1.0	5.71796E+02	5.71796E+02	5.71796E+02	5.71796E+02	5.71796E+02	5.71796E+02
2.0	5.40821E+02	5.40821E+02	5.40821E+02	5.40821E+02	5.40821E+02	5.40821E+02
3.0	5.10046E+02	5.10046E+02	5.10046E+02	5.10046E+02	5.10046E+02	5.10046E+02
4.0	4.79471E+02	4.79471E+02	4.79471E+02	4.79471E+02	4.79471E+02	4.79471E+02
5.0	4.49096E+02	4.49096E+02	4.49096E+02	4.49096E+02	4.49096E+02	4.49096E+02
6.0	4.18921E+02	4.18921E+02	4.18921E+02	4.18921E+02	4.18921E+02	4.18921E+02
7.0	3.88946E+02	3.88946E+02	3.88946E+02	3.88946E+02	3.88946E+02	3.88946E+02
8.0	3.59171E+02	3.59171E+02	3.59171E+02	3.59171E+02	3.59171E+02	3.59171E+02
9.0	3.29596E+02	3.29596E+02	3.29596E+02	3.29596E+02	3.29596E+02	3.29596E+02
10.0	3.00221E+02	3.00221E+02	3.00221E+02	3.00221E+02	3.00221E+02	3.00221E+02
11.0	2.71046E+02	2.71046E+02	2.71046E+02	2.71046E+02	2.71046E+02	2.71046E+02
12.0	2.42071E+02	2.42071E+02	2.42071E+02	2.42071E+02	2.42071E+02	2.42071E+02
13.0	2.13296E+02	2.13296E+02	2.13296E+02	2.13296E+02	2.13296E+02	2.13296E+02
14.0	1.84721E+02	1.84721E+02	1.84721E+02	1.84721E+02	1.84721E+02	1.84721E+02
15.0	1.56346E+02	1.56346E+02	1.56346E+02	1.56346E+02	1.56346E+02	1.56346E+02
16.0	1.28171E+02	1.28171E+02	1.28171E+02	1.28171E+02	1.28171E+02	1.28171E+02
17.0	1.00196E+02	1.00196E+02	1.00196E+02	1.00196E+02	1.00196E+02	1.00196E+02
18.0	72421E+01	72421E+01	72421E+01	72421E+01	72421E+01	72421E+01
19.0	44846E+01	44846E+01	44846E+01	44846E+01	44846E+01	44846E+01
20.0	17271E+01	17271E+01	17271E+01	17271E+01	17271E+01	17271E+01
21.0	-10304E+01	-10304E+01	-10304E+01	-10304E+01	-10304E+01	-10304E+01
22.0	-37829E+01	-37829E+01	-37829E+01	-37829E+01	-37829E+01	-37829E+01
23.0	-65354E+01	-65354E+01	-65354E+01	-65354E+01	-65354E+01	-65354E+01
24.0	-92879E+01	-92879E+01	-92879E+01	-92879E+01	-92879E+01	-92879E+01
25.0	-120404E+01	-120404E+01	-120404E+01	-120404E+01	-120404E+01	-120404E+01
26.0	-147929E+01	-147929E+01	-147929E+01	-147929E+01	-147929E+01	-147929E+01
27.0	-175454E+01	-175454E+01	-175454E+01	-175454E+01	-175454E+01	-175454E+01
28.0	-202979E+01	-202979E+01	-202979E+01	-202979E+01	-202979E+01	-202979E+01
29.0	-230504E+01	-230504E+01	-230504E+01	-230504E+01	-230504E+01	-230504E+01
30.0	-258029E+01	-258029E+01	-258029E+01	-258029E+01	-258029E+01	-258029E+01
31.0	-285554E+01	-285554E+01	-285554E+01	-285554E+01	-285554E+01	-285554E+01
32.0	-313079E+01	-313079E+01	-313079E+01	-313079E+01	-313079E+01	-313079E+01
33.0	-340604E+01	-340604E+01	-340604E+01	-340604E+01	-340604E+01	-340604E+01
34.0	-368129E+01	-368129E+01	-368129E+01	-368129E+01	-368129E+01	-368129E+01
35.0	-395654E+01	-395654E+01	-395654E+01	-395654E+01	-395654E+01	-395654E+01
36.0	-423179E+01	-423179E+01	-423179E+01	-423179E+01	-423179E+01	-423179E+01
37.0	-450704E+01	-450704E+01	-450704E+01	-450704E+01	-450704E+01	-450704E+01
38.0	-478229E+01	-478229E+01	-478229E+01	-478229E+01	-478229E+01	-478229E+01
39.0	-505754E+01	-505754E+01	-505754E+01	-505754E+01	-505754E+01	-505754E+01
40.0	-533279E+01	-533279E+01	-533279E+01	-533279E+01	-533279E+01	-533279E+01
41.0	-560804E+01	-560804E+01	-560804E+01	-560804E+01	-560804E+01	-560804E+01
42.0	-588329E+01	-588329E+01	-588329E+01	-588329E+01	-588329E+01	-588329E+01
43.0	-615854E+01	-615854E+01	-615854E+01	-615854E+01	-615854E+01	-615854E+01
44.0	-643379E+01	-643379E+01	-643379E+01	-643379E+01	-643379E+01	-643379E+01
45.0	-670904E+01	-670904E+01	-670904E+01	-670904E+01	-670904E+01	-670904E+01
46.0	-698429E+01	-698429E+01	-698429E+01	-698429E+01	-698429E+01	-698429E+01
47.0	-725954E+01	-725954E+01	-725954E+01	-725954E+01	-725954E+01	-725954E+01
48.0	-753479E+01	-753479E+01	-753479E+01	-753479E+01	-753479E+01	-753479E+01
49.0	-781004E+01	-781004E+01	-781004E+01	-781004E+01	-781004E+01	-781004E+01
50.0	-808529E+01	-808529E+01	-808529E+01	-808529E+01	-808529E+01	-808529E+01
51.0	-836054E+01	-836054E+01	-836054E+01	-836054E+01	-836054E+01	-836054E+01
52.0	-863579E+01	-863579E+01	-863579E+01	-863579E+01	-863579E+01	-863579E+01
53.0	-891104E+01	-891104E+01	-891104E+01	-891104E+01	-891104E+01	-891104E+01
54.0	-918629E+01	-918629E+01	-918629E+01	-918629E+01	-918629E+01	-918629E+01
55.0	-946154E+01	-946154E+01	-946154E+01	-946154E+01	-946154E+01	-946154E+01
56.0	-973679E+01	-973679E+01	-973679E+01	-973679E+01	-973679E+01	-973679E+01
57.0	-1001204E+01	-1001204E+01	-1001204E+01	-1001204E+01	-1001204E+01	-1001204E+01
58.0	-1028729E+01	-1028729E+01	-1028729E+01	-1028729E+01	-1028729E+01	-1028729E+01
59.0	-1056254E+01	-1056254E+01	-1056254E+01	-1056254E+01	-1056254E+01	-1056254E+01
60.0	-1083779E+01	-1083779E+01	-1083779E+01	-1083779E+01	-1083779E+01	-1083779E+01
61.0	-1111304E+01	-1111304E+01	-1111304E+01	-1111304E+01	-1111304E+01	-1111304E+01
62.0	-1138829E+01	-1138829E+01	-1138829E+01	-1138829E+01	-1138829E+01	-1138829E+01
63.0	-1166354E+01	-1166354E+01	-1166354E+01	-1166354E+01	-1166354E+01	-1166354E+01
64.0	-1193879E+01	-1193879E+01	-1193879E+01	-1193879E+01	-1193879E+01	-1193879E+01
65.0	-1221404E+01	-1221404E+01	-1221404E+01	-1221404E+01	-1221404E+01	-1221404E+01
66.0	-1248929E+01	-1248929E+01	-1248929E+01	-1248929E+01	-1248929E+01	-1248929E+01
67.0	-1276454E+01	-1276454E+01	-1276454E+01	-1276454E+01	-1276454E+01	-1276454E+01
68.0	-1303979E+01	-1303979E+01	-1303979E+01	-1303979E+01	-1303979E+01	-1303979E+01
69.0	-1331504E+01	-1331504E+01	-1331504E+01	-1331504E+01	-1331504E+01	-1331504E+01
70.0	-1359029E+01	-1359029E+01	-1359029E+01	-1359029E+01	-1359029E+01	-1359029E+01
71.0	-1386554E+01	-1386554E+01	-1386554E+01	-1386554E+01	-1386554E+01	-1386554E+01
72.0	-1414079E+01	-1414079E+01	-1414079E+01	-1414079E+01	-1414079E+01	-1414079E+01
73.0	-1441604E+01	-1441604E+01	-1441604E+01	-1441604E+01	-1441604E+01	-1441604E+01
74.0	-1469129E+01	-1469129E+01	-1469129E+01	-1469129E+01	-1469129E+01	-1469129E+01
75.0	-1496654E+01	-1496654E+01	-1496654E+01	-1496654E+01	-1496654E+01	-1496654E+01
76.0	-1524179E+01	-1524179E+01	-1524179E+01	-1524179E+01	-1524179E+01	-1524179E+01
77.0	-1551704E+01	-1551704E+01	-1551704E+01	-1551704E+01	-1551704E+01	-1551704E+01
78.0	-1579229E+01	-1579229E+01	-1579229E+01	-1579229E+01	-1579229E+01	-1579229E+01
79.0	-1606754E+01	-1606754E+01	-1606754E+01	-1606754E+01	-1606754E+01	-1606754E+01
80.0	-1634279E+01	-1634279E+01	-1634279E+01	-1634279E+01	-1634279E+01	-1634279E+01
81.0	-1661804E+01	-1661804E+01	-1661804E+01	-1661804E+01	-1661804E+01	-1661804E+01
82.0	-1689329E+01	-1689329E+01	-1689329E+01	-1689329E+01	-1689329E+01	-1689329E+01
83.0	-1716854E+01	-1716854E+01	-1716854E+01	-1716854E+01	-1716854E+01	-1716854E+01
84.0	-1744379E+01	-1744379E+01	-1744379E+01	-1744379E+01	-1744379E+01	-1744379E+01
85.0	-1771904E+01	-1771904E+01	-1771904E+01	-1771904E+01	-1771904E+01	-1771904E+01
86.0	-1800000E+01	-1800000E+01	-1800000E+01	-1800000E+01	-1800000E+01	-1800000E+01
87.0	-1828000E+01	-1828000E+01	-1828000E+01	-1828000E+01	-1828000E+01	-1828000E+01
88.0	-1856000E+01	-1856000E+01	-1856000E+01	-1856000E+01	-1856000E+01	-1856000E+01
89.0	-1884000E+01	-1884000E+01	-1884000E+01	-1884000E+01	-1884000E+01	-1884000E+01
90.0	-1912000E+01	-1912000E+01	-1912000E+01	-1912000E+01	-1912000E+01	-1912000E+01
91.0	-1940000E+01	-1940000E+01	-1940000E+01	-1940000E+01	-1940000E+01	-1940000E+01
92.0	-1968000E+01	-1968000E+01	-1968000E+01	-1968000E+01	-1968000E+01	-1968000E+01
93.0	-1996000E+01	-1996000E+01	-1996000E+01	-1996000E+01	-1996000E+01	-1996000E+01
94.0	-2024000E+01	-2024000E+01	-2024000E+01	-2024000E+01	-2024000E+01	-2024000E+01
95.0	-2052000E+01	-2052000E+01	-2052000E+01	-2052000E+01	-2052000E+01	-2052000E+01
96.0	-2080000E+01	-2080000E+01	-2080000E+01	-2080000E+01	-2080000E+01	-2080000E+01
97.0	-2108000E+01	-2108000E+01	-2108000E+01	-2108000E+01	-2108000E+01	-2108000E+01
98.0	-2136000E+01	-2136000E+01	-2136000E+01	-2136000E+01	-2136000E+01	-2136000E+01
99.0	-2164000E+01	-2164000E+01	-2164000E+01	-2164000E+01	-2164000E+01	-2164000E+01
100.0	-2192000E+01	-2192000E+01	-2192000E+01	-2192000E+01	-2192000E+01	-2192000E+01



TABLE C4. NORMALIZED PHASE MATRIX FOR TYPE A AEROSOLS, MODEL 200,  $\lambda=0.60$   
 $M=1.55-0.001$

SCATTERING ANGLE	11	12	13	14	15	16
0.0	1.370845E-02	1.370845E-02	1.370845E-02	-1.767910E-13	3.274300E-02	2.902735E-02
1.0	1.368585E-02	1.368585E-02	1.368585E-02	-5.088280E-13	3.274300E-02	2.902735E-02
2.0	1.366325E-02	1.366325E-02	1.366325E-02	-9.488000E-13	3.274300E-02	2.902735E-02
3.0	1.364065E-02	1.364065E-02	1.364065E-02	-1.388520E-12	3.274300E-02	2.902735E-02
4.0	1.361805E-02	1.361805E-02	1.361805E-02	-1.789040E-12	3.274300E-02	2.902735E-02
5.0	1.359545E-02	1.359545E-02	1.359545E-02	-2.189560E-12	3.274300E-02	2.902735E-02
6.0	1.357285E-02	1.357285E-02	1.357285E-02	-2.590080E-12	3.274300E-02	2.902735E-02
7.0	1.355025E-02	1.355025E-02	1.355025E-02	-2.990600E-12	3.274300E-02	2.902735E-02
8.0	1.352765E-02	1.352765E-02	1.352765E-02	-3.391120E-12	3.274300E-02	2.902735E-02
9.0	1.350505E-02	1.350505E-02	1.350505E-02	-3.791640E-12	3.274300E-02	2.902735E-02
10.0	1.348245E-02	1.348245E-02	1.348245E-02	-4.192160E-12	3.274300E-02	2.902735E-02
11.0	1.345985E-02	1.345985E-02	1.345985E-02	-4.592680E-12	3.274300E-02	2.902735E-02
12.0	1.343725E-02	1.343725E-02	1.343725E-02	-4.993200E-12	3.274300E-02	2.902735E-02
13.0	1.341465E-02	1.341465E-02	1.341465E-02	-5.393720E-12	3.274300E-02	2.902735E-02
14.0	1.339205E-02	1.339205E-02	1.339205E-02	-5.794240E-12	3.274300E-02	2.902735E-02
15.0	1.336945E-02	1.336945E-02	1.336945E-02	-6.194760E-12	3.274300E-02	2.902735E-02
16.0	1.334685E-02	1.334685E-02	1.334685E-02	-6.595280E-12	3.274300E-02	2.902735E-02
17.0	1.332425E-02	1.332425E-02	1.332425E-02	-6.995800E-12	3.274300E-02	2.902735E-02
18.0	1.330165E-02	1.330165E-02	1.330165E-02	-7.396320E-12	3.274300E-02	2.902735E-02
19.0	1.327905E-02	1.327905E-02	1.327905E-02	-7.796840E-12	3.274300E-02	2.902735E-02
20.0	1.325645E-02	1.325645E-02	1.325645E-02	-8.197360E-12	3.274300E-02	2.902735E-02
21.0	1.323385E-02	1.323385E-02	1.323385E-02	-8.597880E-12	3.274300E-02	2.902735E-02
22.0	1.321125E-02	1.321125E-02	1.321125E-02	-8.998400E-12	3.274300E-02	2.902735E-02
23.0	1.318865E-02	1.318865E-02	1.318865E-02	-9.398920E-12	3.274300E-02	2.902735E-02
24.0	1.316605E-02	1.316605E-02	1.316605E-02	-9.799440E-12	3.274300E-02	2.902735E-02
25.0	1.314345E-02	1.314345E-02	1.314345E-02	-1.019960E-11	3.274300E-02	2.902735E-02
26.0	1.312085E-02	1.312085E-02	1.312085E-02	-1.060480E-11	3.274300E-02	2.902735E-02
27.0	1.309825E-02	1.309825E-02	1.309825E-02	-1.101000E-11	3.274300E-02	2.902735E-02
28.0	1.307565E-02	1.307565E-02	1.307565E-02	-1.141520E-11	3.274300E-02	2.902735E-02
29.0	1.305305E-02	1.305305E-02	1.305305E-02	-1.182040E-11	3.274300E-02	2.902735E-02
30.0	1.303045E-02	1.303045E-02	1.303045E-02	-1.222560E-11	3.274300E-02	2.902735E-02
31.0	1.300785E-02	1.300785E-02	1.300785E-02	-1.263080E-11	3.274300E-02	2.902735E-02
32.0	1.298525E-02	1.298525E-02	1.298525E-02	-1.303600E-11	3.274300E-02	2.902735E-02
33.0	1.296265E-02	1.296265E-02	1.296265E-02	-1.344120E-11	3.274300E-02	2.902735E-02
34.0	1.294005E-02	1.294005E-02	1.294005E-02	-1.384640E-11	3.274300E-02	2.902735E-02
35.0	1.291745E-02	1.291745E-02	1.291745E-02	-1.425160E-11	3.274300E-02	2.902735E-02
36.0	1.289485E-02	1.289485E-02	1.289485E-02	-1.465680E-11	3.274300E-02	2.902735E-02
37.0	1.287225E-02	1.287225E-02	1.287225E-02	-1.506200E-11	3.274300E-02	2.902735E-02
38.0	1.284965E-02	1.284965E-02	1.284965E-02	-1.546720E-11	3.274300E-02	2.902735E-02
39.0	1.282705E-02	1.282705E-02	1.282705E-02	-1.587240E-11	3.274300E-02	2.902735E-02
40.0	1.280445E-02	1.280445E-02	1.280445E-02	-1.627760E-11	3.274300E-02	2.902735E-02
41.0	1.278185E-02	1.278185E-02	1.278185E-02	-1.668280E-11	3.274300E-02	2.902735E-02
42.0	1.275925E-02	1.275925E-02	1.275925E-02	-1.708800E-11	3.274300E-02	2.902735E-02
43.0	1.273665E-02	1.273665E-02	1.273665E-02	-1.749320E-11	3.274300E-02	2.902735E-02
44.0	1.271405E-02	1.271405E-02	1.271405E-02	-1.789840E-11	3.274300E-02	2.902735E-02
45.0	1.269145E-02	1.269145E-02	1.269145E-02	-1.830360E-11	3.274300E-02	2.902735E-02
46.0	1.266885E-02	1.266885E-02	1.266885E-02	-1.870880E-11	3.274300E-02	2.902735E-02
47.0	1.264625E-02	1.264625E-02	1.264625E-02	-1.911400E-11	3.274300E-02	2.902735E-02
48.0	1.262365E-02	1.262365E-02	1.262365E-02	-1.951920E-11	3.274300E-02	2.902735E-02
49.0	1.260105E-02	1.260105E-02	1.260105E-02	-1.992440E-11	3.274300E-02	2.902735E-02
50.0	1.257845E-02	1.257845E-02	1.257845E-02	-2.032960E-11	3.274300E-02	2.902735E-02
51.0	1.255585E-02	1.255585E-02	1.255585E-02	-2.073480E-11	3.274300E-02	2.902735E-02
52.0	1.253325E-02	1.253325E-02	1.253325E-02	-2.114000E-11	3.274300E-02	2.902735E-02
53.0	1.251065E-02	1.251065E-02	1.251065E-02	-2.154520E-11	3.274300E-02	2.902735E-02
54.0	1.248805E-02	1.248805E-02	1.248805E-02	-2.195040E-11	3.274300E-02	2.902735E-02
55.0	1.246545E-02	1.246545E-02	1.246545E-02	-2.235560E-11	3.274300E-02	2.902735E-02
56.0	1.244285E-02	1.244285E-02	1.244285E-02	-2.276080E-11	3.274300E-02	2.902735E-02
57.0	1.242025E-02	1.242025E-02	1.242025E-02	-2.316600E-11	3.274300E-02	2.902735E-02
58.0	1.239765E-02	1.239765E-02	1.239765E-02	-2.357120E-11	3.274300E-02	2.902735E-02
59.0	1.237505E-02	1.237505E-02	1.237505E-02	-2.397640E-11	3.274300E-02	2.902735E-02
60.0	1.235245E-02	1.235245E-02	1.235245E-02	-2.438160E-11	3.274300E-02	2.902735E-02

TABLE C5. NORMALIZED PHASE MATRIX FOR TYPE A AEROSOLS, MODEL 500,  $\lambda=0.45\mu$ 

M=1.55-0.031

SCATTERING ANGLE	11	12	13	14	SCATTERING ANGLE	11	12	13	14
0.00	1.33370E-02	1.33370E-02	1.33370E-02	1.33370E-02	0.00	8.60137E-02	5.63351E-02	9.70139E-02	-9.61811E-03
1.00	1.27340E-02	1.27340E-02	1.27340E-02	1.27340E-02	1.00	8.60137E-02	5.63351E-02	9.70139E-02	-9.61811E-03
2.00	1.16270E-02	1.16270E-02	1.16270E-02	1.16270E-02	2.00	8.60137E-02	5.63351E-02	9.70139E-02	-9.61811E-03
3.00	1.00000E-02	1.00000E-02	1.00000E-02	1.00000E-02	3.00	8.60137E-02	5.63351E-02	9.70139E-02	-9.61811E-03
4.00	8.33333E-03	8.33333E-03	8.33333E-03	8.33333E-03	4.00	8.60137E-02	5.63351E-02	9.70139E-02	-9.61811E-03
5.00	6.66667E-03	6.66667E-03	6.66667E-03	6.66667E-03	5.00	8.60137E-02	5.63351E-02	9.70139E-02	-9.61811E-03
6.00	5.00000E-03	5.00000E-03	5.00000E-03	5.00000E-03	6.00	8.60137E-02	5.63351E-02	9.70139E-02	-9.61811E-03
7.00	3.33333E-03	3.33333E-03	3.33333E-03	3.33333E-03	7.00	8.60137E-02	5.63351E-02	9.70139E-02	-9.61811E-03
8.00	1.66667E-03	1.66667E-03	1.66667E-03	1.66667E-03	8.00	8.60137E-02	5.63351E-02	9.70139E-02	-9.61811E-03
9.00	0.00000E-03	0.00000E-03	0.00000E-03	0.00000E-03	9.00	8.60137E-02	5.63351E-02	9.70139E-02	-9.61811E-03
10.00	0.00000E-03	0.00000E-03	0.00000E-03	0.00000E-03	10.00	8.60137E-02	5.63351E-02	9.70139E-02	-9.61811E-03
11.00	0.00000E-03	0.00000E-03	0.00000E-03	0.00000E-03	11.00	8.60137E-02	5.63351E-02	9.70139E-02	-9.61811E-03
12.00	0.00000E-03	0.00000E-03	0.00000E-03	0.00000E-03	12.00	8.60137E-02	5.63351E-02	9.70139E-02	-9.61811E-03
13.00	0.00000E-03	0.00000E-03	0.00000E-03	0.00000E-03	13.00	8.60137E-02	5.63351E-02	9.70139E-02	-9.61811E-03
14.00	0.00000E-03	0.00000E-03	0.00000E-03	0.00000E-03	14.00	8.60137E-02	5.63351E-02	9.70139E-02	-9.61811E-03
15.00	0.00000E-03	0.00000E-03	0.00000E-03	0.00000E-03	15.00	8.60137E-02	5.63351E-02	9.70139E-02	-9.61811E-03
16.00	0.00000E-03	0.00000E-03	0.00000E-03	0.00000E-03	16.00	8.60137E-02	5.63351E-02	9.70139E-02	-9.61811E-03
17.00	0.00000E-03	0.00000E-03	0.00000E-03	0.00000E-03	17.00	8.60137E-02	5.63351E-02	9.70139E-02	-9.61811E-03
18.00	0.00000E-03	0.00000E-03	0.00000E-03	0.00000E-03	18.00	8.60137E-02	5.63351E-02	9.70139E-02	-9.61811E-03
19.00	0.00000E-03	0.00000E-03	0.00000E-03	0.00000E-03	19.00	8.60137E-02	5.63351E-02	9.70139E-02	-9.61811E-03
20.00	0.00000E-03	0.00000E-03	0.00000E-03	0.00000E-03	20.00	8.60137E-02	5.63351E-02	9.70139E-02	-9.61811E-03
21.00	0.00000E-03	0.00000E-03	0.00000E-03	0.00000E-03	21.00	8.60137E-02	5.63351E-02	9.70139E-02	-9.61811E-03
22.00	0.00000E-03	0.00000E-03	0.00000E-03	0.00000E-03	22.00	8.60137E-02	5.63351E-02	9.70139E-02	-9.61811E-03
23.00	0.00000E-03	0.00000E-03	0.00000E-03	0.00000E-03	23.00	8.60137E-02	5.63351E-02	9.70139E-02	-9.61811E-03
24.00	0.00000E-03	0.00000E-03	0.00000E-03	0.00000E-03	24.00	8.60137E-02	5.63351E-02	9.70139E-02	-9.61811E-03
25.00	0.00000E-03	0.00000E-03	0.00000E-03	0.00000E-03	25.00	8.60137E-02	5.63351E-02	9.70139E-02	-9.61811E-03
26.00	0.00000E-03	0.00000E-03	0.00000E-03	0.00000E-03	26.00	8.60137E-02	5.63351E-02	9.70139E-02	-9.61811E-03
27.00	0.00000E-03	0.00000E-03	0.00000E-03	0.00000E-03	27.00	8.60137E-02	5.63351E-02	9.70139E-02	-9.61811E-03
28.00	0.00000E-03	0.00000E-03	0.00000E-03	0.00000E-03	28.00	8.60137E-02	5.63351E-02	9.70139E-02	-9.61811E-03
29.00	0.00000E-03	0.00000E-03	0.00000E-03	0.00000E-03	29.00	8.60137E-02	5.63351E-02	9.70139E-02	-9.61811E-03
30.00	0.00000E-03	0.00000E-03	0.00000E-03	0.00000E-03	30.00	8.60137E-02	5.63351E-02	9.70139E-02	-9.61811E-03

TABLE C6. NORMALIZED PHASE MATRIX FOR TYPE A AEROSOLS; MODEL 500,  $\lambda=0.55\mu$

[illegible]

TABLE C7. NORMALIZED PHASE MATRIX FOR TYPE A AEROSOLS, N<sub>2</sub>DEL 500, λ=0.70μ

SCATTERING ANGLE	11	12	13	14
0.00	9.761707E+02	9.761707E+02	9.761707E+02	9.761707E+02
0.10	9.657646E+01	9.657646E+01	9.657646E+01	9.657646E+01
0.20	9.479593E+01	9.479593E+01	9.479593E+01	9.479593E+01
0.30	9.225682E+01	9.225682E+01	9.225682E+01	9.225682E+01
0.40	8.908232E+01	8.908232E+01	8.908232E+01	8.908232E+01
0.50	8.530401E+01	8.530401E+01	8.530401E+01	8.530401E+01
0.60	8.106444E+01	8.106444E+01	8.106444E+01	8.106444E+01
0.70	7.641744E+01	7.641744E+01	7.641744E+01	7.641744E+01
0.80	7.142044E+01	7.142044E+01	7.142044E+01	7.142044E+01
0.90	6.614444E+01	6.614444E+01	6.614444E+01	6.614444E+01
1.00	6.065444E+01	6.065444E+01	6.065444E+01	6.065444E+01
1.10	5.492444E+01	5.492444E+01	5.492444E+01	5.492444E+01
1.20	4.893444E+01	4.893444E+01	4.893444E+01	4.893444E+01
1.30	4.267444E+01	4.267444E+01	4.267444E+01	4.267444E+01
1.40	3.623444E+01	3.623444E+01	3.623444E+01	3.623444E+01
1.50	2.961444E+01	2.961444E+01	2.961444E+01	2.961444E+01
1.60	2.281444E+01	2.281444E+01	2.281444E+01	2.281444E+01
1.70	1.593444E+01	1.593444E+01	1.593444E+01	1.593444E+01
1.80	9.073444E+00	9.073444E+00	9.073444E+00	9.073444E+00
1.90	2.224444E+00	2.224444E+00	2.224444E+00	2.224444E+00
2.00	1.593444E+00	1.593444E+00	1.593444E+00	1.593444E+00
2.10	1.000444E+00	1.000444E+00	1.000444E+00	1.000444E+00
2.20	6.369444E-01	6.369444E-01	6.369444E-01	6.369444E-01
2.30	4.164444E-01	4.164444E-01	4.164444E-01	4.164444E-01
2.40	2.761444E-01	2.761444E-01	2.761444E-01	2.761444E-01
2.50	1.761444E-01	1.761444E-01	1.761444E-01	1.761444E-01
2.60	1.161444E-01	1.161444E-01	1.161444E-01	1.161444E-01
2.70	7.614444E-02	7.614444E-02	7.614444E-02	7.614444E-02
2.80	5.014444E-02	5.014444E-02	5.014444E-02	5.014444E-02
2.90	3.314444E-02	3.314444E-02	3.314444E-02	3.314444E-02
3.00	2.214444E-02	2.214444E-02	2.214444E-02	2.214444E-02
3.10	1.514444E-02	1.514444E-02	1.514444E-02	1.514444E-02
3.20	1.014444E-02	1.014444E-02	1.014444E-02	1.014444E-02
3.30	6.614444E-03	6.614444E-03	6.614444E-03	6.614444E-03
3.40	4.414444E-03	4.414444E-03	4.414444E-03	4.414444E-03
3.50	2.914444E-03	2.914444E-03	2.914444E-03	2.914444E-03
3.60	1.914444E-03	1.914444E-03	1.914444E-03	1.914444E-03
3.70	1.214444E-03	1.214444E-03	1.214444E-03	1.214444E-03
3.80	8.144444E-04	8.144444E-04	8.144444E-04	8.144444E-04
3.90	5.444444E-04	5.444444E-04	5.444444E-04	5.444444E-04
4.00	3.644444E-04	3.644444E-04	3.644444E-04	3.644444E-04
4.10	2.444444E-04	2.444444E-04	2.444444E-04	2.444444E-04
4.20	1.644444E-04	1.644444E-04	1.644444E-04	1.644444E-04
4.30	1.144444E-04	1.144444E-04	1.144444E-04	1.144444E-04
4.40	7.444444E-05	7.444444E-05	7.444444E-05	7.444444E-05
4.50	5.044444E-05	5.044444E-05	5.044444E-05	5.044444E-05
4.60	3.344444E-05	3.344444E-05	3.344444E-05	3.344444E-05
4.70	2.244444E-05	2.244444E-05	2.244444E-05	2.244444E-05
4.80	1.544444E-05	1.544444E-05	1.544444E-05	1.544444E-05
4.90	1.044444E-05	1.044444E-05	1.044444E-05	1.044444E-05
5.00	6.644444E-06	6.644444E-06	6.644444E-06	6.644444E-06

44-38861-1031

44-38861-1031

SCATTERING ANGLE	11	12	13	14
0.00	5.112575E+01	5.112575E+01	5.112575E+01	5.112575E+01
1.0	4.102270E+01	4.102270E+01	4.102270E+01	4.102270E+01
2.0	3.102270E+01	3.102270E+01	3.102270E+01	3.102270E+01
3.0	2.102270E+01	2.102270E+01	2.102270E+01	2.102270E+01
4.0	1.102270E+01	1.102270E+01	1.102270E+01	1.102270E+01
5.0	0.102270E+01	0.102270E+01	0.102270E+01	0.102270E+01
6.0	-0.102270E+01	-0.102270E+01	-0.102270E+01	-0.102270E+01
7.0	-1.102270E+01	-1.102270E+01	-1.102270E+01	-1.102270E+01
8.0	-2.102270E+01	-2.102270E+01	-2.102270E+01	-2.102270E+01
9.0	-3.102270E+01	-3.102270E+01	-3.102270E+01	-3.102270E+01
10.0	-4.102270E+01	-4.102270E+01	-4.102270E+01	-4.102270E+01
11.0	-5.102270E+01	-5.102270E+01	-5.102270E+01	-5.102270E+01
12.0	-6.102270E+01	-6.102270E+01	-6.102270E+01	-6.102270E+01
13.0	-7.102270E+01	-7.102270E+01	-7.102270E+01	-7.102270E+01
14.0	-8.102270E+01	-8.102270E+01	-8.102270E+01	-8.102270E+01
15.0	-9.102270E+01	-9.102270E+01	-9.102270E+01	-9.102270E+01
16.0	-1.010227E+02	-1.010227E+02	-1.010227E+02	-1.010227E+02
17.0	-2.010227E+02	-2.010227E+02	-2.010227E+02	-2.010227E+02
18.0	-3.010227E+02	-3.010227E+02	-3.010227E+02	-3.010227E+02
19.0	-4.010227E+02	-4.010227E+02	-4.010227E+02	-4.010227E+02
20.0	-5.010227E+02	-5.010227E+02	-5.010227E+02	-5.010227E+02
21.0	-6.010227E+02	-6.010227E+02	-6.010227E+02	-6.010227E+02
22.0	-7.010227E+02	-7.010227E+02	-7.010227E+02	-7.010227E+02
23.0	-8.010227E+02	-8.010227E+02	-8.010227E+02	-8.010227E+02
24.0	-9.010227E+02	-9.010227E+02	-9.010227E+02	-9.010227E+02
25.0	-1.001023E+03	-1.001023E+03	-1.001023E+03	-1.001023E+03
26.0	-2.001023E+03	-2.001023E+03	-2.001023E+03	-2.001023E+03
27.0	-3.001023E+03	-3.001023E+03	-3.001023E+03	-3.001023E+03
28.0	-4.001023E+03	-4.001023E+03	-4.001023E+03	-4.001023E+03
29.0	-5.001023E+03	-5.001023E+03	-5.001023E+03	-5.001023E+03
30.0	-6.001023E+03	-6.001023E+03	-6.001023E+03	-6.001023E+03
31.0	-7.001023E+03	-7.001023E+03	-7.001023E+03	-7.001023E+03
32.0	-8.001023E+03	-8.001023E+03	-8.001023E+03	-8.001023E+03
33.0	-9.001023E+03	-9.001023E+03	-9.001023E+03	-9.001023E+03
34.0	-1.000102E+04	-1.000102E+04	-1.000102E+04	-1.000102E+04
35.0	-2.000102E+04	-2.000102E+04	-2.000102E+04	-2.000102E+04
36.0	-3.000102E+04	-3.000102E+04	-3.000102E+04	-3.000102E+04
37.0	-4.000102E+04	-4.000102E+04	-4.000102E+04	-4.000102E+04
38.0	-5.000102E+04	-5.000102E+04	-5.000102E+04	-5.000102E+04
39.0	-6.000102E+04	-6.000102E+04	-6.000102E+04	-6.000102E+04
40.0	-7.000102E+04	-7.000102E+04	-7.000102E+04	-7.000102E+04
41.0	-8.000102E+04	-8.000102E+04	-8.000102E+04	-8.000102E+04
42.0	-9.000102E+04	-9.000102E+04	-9.000102E+04	-9.000102E+04
43.0	-1.000010E+05	-1.000010E+05	-1.000010E+05	-1.000010E+05
44.0	-2.000010E+05	-2.000010E+05	-2.000010E+05	-2.000010E+05
45.0	-3.000010E+05	-3.000010E+05	-3.000010E+05	-3.000010E+05
46.0	-4.000010E+05	-4.000010E+05	-4.000010E+05	-4.000010E+05
47.0	-5.000010E+05	-5.000010E+05	-5.000010E+05	-5.000010E+05
48.0	-6.000010E+05	-6.000010E+05	-6.000010E+05	-6.000010E+05
49.0	-7.000010E+05</			

TABLE CV. NORMALIZED PHASE MATRIX FOR TYPE A MICROSLITS, MODEL 600,  $\lambda=0.40\mu$   
 PA1-55-0.031

SCATTERING ANGLE	15	12	13	14	SCATTERING ANGLE	15	12	13	14
0.0	2.00133E-01	2.00133E-01	2.00133E-01	2.00133E-01	0.0	1.15000E-01	6.78235E-02	8.32599E-02	9.91366E-03
10	2.77909E-01	2.77910E-01	2.77910E-01	2.77910E-01	10	1.97670E-01	6.07160E-02	7.64249E-02	9.19089E-03
20	2.52722E-01	2.52722E-01	2.52722E-01	2.52722E-01	20	1.32160E-01	5.80359E-02	7.00336E-02	7.92156E-03
30	2.18217E-01	2.18217E-01	2.18217E-01	2.18217E-01	30	9.46160E-02	6.45359E-02	6.45359E-02	7.42151E-03
40	1.75315E-01	1.75315E-01	1.75315E-01	1.75315E-01	40	6.32640E-02	6.45359E-02	6.45359E-02	6.45359E-03
50	1.35078E-01	1.35078E-01	1.35078E-01	1.35078E-01	50	4.35190E-02	6.45359E-02	6.45359E-02	6.45359E-03
60	1.02272E-01	1.02272E-01	1.02272E-01	1.02272E-01	60	3.02190E-02	6.45359E-02	6.45359E-02	6.45359E-03
70	7.55030E-02	7.55030E-02	7.55030E-02	7.55030E-02	70	2.17190E-02	6.45359E-02	6.45359E-02	6.45359E-03
80	5.21317E-02	5.21317E-02	5.21317E-02	5.21317E-02	80	1.51910E-02	6.45359E-02	6.45359E-02	6.45359E-03
90	3.66164E-02	3.66164E-02	3.66164E-02	3.66164E-02	90	1.02190E-02	6.45359E-02	6.45359E-02	6.45359E-03
100	2.56394E-02	2.56394E-02	2.56394E-02	2.56394E-02	100	6.81570E-03	6.45359E-02	6.45359E-02	6.45359E-03
110	1.76394E-02	1.76394E-02	1.76394E-02	1.76394E-02	110	4.61570E-03	6.45359E-02	6.45359E-02	6.45359E-03
120	1.26394E-02	1.26394E-02	1.26394E-02	1.26394E-02	120	3.16570E-03	6.45359E-02	6.45359E-02	6.45359E-03
130	8.6394E-03	8.6394E-03	8.6394E-03	8.6394E-03	130	2.16570E-03	6.45359E-02	6.45359E-02	6.45359E-03
140	5.6394E-03	5.6394E-03	5.6394E-03	5.6394E-03	140	1.46570E-03	6.45359E-02	6.45359E-02	6.45359E-03
150	3.6394E-03	3.6394E-03	3.6394E-03	3.6394E-03	150	9.61570E-04	6.45359E-02	6.45359E-02	6.45359E-03
160	2.4394E-03	2.4394E-03	2.4394E-03	2.4394E-03	160	6.41570E-04	6.45359E-02	6.45359E-02	6.45359E-03
170	1.6394E-03	1.6394E-03	1.6394E-03	1.6394E-03	170	4.21570E-04	6.45359E-02	6.45359E-02	6.45359E-03
180	1.0394E-03	1.0394E-03	1.0394E-03	1.0394E-03	180	2.81570E-04	6.45359E-02	6.45359E-02	6.45359E-03
190	6.394E-04	6.394E-04	6.394E-04	6.394E-04	190	1.81570E-04	6.45359E-02	6.45359E-02	6.45359E-03
200	4.394E-04	4.394E-04	4.394E-04	4.394E-04	200	1.21570E-04	6.45359E-02	6.45359E-02	6.45359E-03
210	2.9394E-04	2.9394E-04	2.9394E-04	2.9394E-04	210	8.1570E-05	6.45359E-02	6.45359E-02	6.45359E-03
220	1.9394E-04	1.9394E-04	1.9394E-04	1.9394E-04	220	5.41570E-05	6.45359E-02	6.45359E-02	6.45359E-03
230	1.2394E-04	1.2394E-04	1.2394E-04	1.2394E-04	230	3.61570E-05	6.45359E-02	6.45359E-02	6.45359E-03
240	8.394E-05	8.394E-05	8.394E-05	8.394E-05	240	2.41570E-05	6.45359E-02	6.45359E-02	6.45359E-03
250	5.394E-05	5.394E-05	5.394E-05	5.394E-05	250	1.61570E-05	6.45359E-02	6.45359E-02	6.45359E-03
260	3.394E-05	3.394E-05	3.394E-05	3.394E-05	260	1.01570E-05	6.45359E-02	6.45359E-02	6.45359E-03
270	2.394E-05	2.394E-05	2.394E-05	2.394E-05	270	6.61570E-06	6.45359E-02	6.45359E-02	6.45359E-03
280	1.594E-05	1.594E-05	1.594E-05	1.594E-05	280	4.41570E-06	6.45359E-02	6.45359E-02	6.45359E-03
290	1.0394E-05	1.0394E-05	1.0394E-05	1.0394E-05	290	2.91570E-06	6.45359E-02	6.45359E-02	6.45359E-03
300	6.394E-06	6.394E-06	6.394E-06	6.394E-06	300	1.91570E-06	6.45359E-02	6.45359E-02	6.45359E-03
310	4.394E-06	4.394E-06	4.394E-06	4.394E-06	310	1.21570E-06	6.45359E-02	6.45359E-02	6.45359E-03
320	2.9394E-06	2.9394E-06	2.9394E-06	2.9394E-06	320	8.1570E-07	6.45359E-02	6.45359E-02	6.45359E-03
330	1.9394E-06	1.9394E-06	1.9394E-06	1.9394E-06	330	5.41570E-07	6.45359E-02	6.45359E-02	6.45359E-03
340	1.2394E-06	1.2394E-06	1.2394E-06	1.2394E-06	340	3.61570E-07	6.45359E-02	6.45359E-02	6.45359E-03
350	8.394E-07	8.394E-07	8.394E-07	8.394E-07	350	2.41570E-07	6.45359E-02	6.45359E-02	6.45359E-03
360	5.394E-07	5.394E-07	5.394E-07	5.394E-07	360	1.61570E-07	6.45359E-02	6.45359E-02	6.45359E-03
370	3.394E-07	3.394E-07	3.394E-07	3.394E-07	370	1.01570E-07	6.45359E-02	6.45359E-02	6.45359E-03
380	2.394E-07	2.394E-07	2.394E-07	2.394E-07	380	6.61570E-08	6.45359E-02	6.45359E-02	6.45359E-03
390	1.594E-07	1.594E-07	1.594E-07	1.594E-07	390	4.41570E-08	6.45359E-02	6.45359E-02	6.45359E-03
400	1.0394E-07	1.0394E-07	1.0394E-07	1.0394E-07	400	2.91570E-08	6.45359E-02	6.45359E-02	6.45359E-03
410	6.394E-08	6.394E-08	6.394E-08	6.394E-08	410	1.91570E-08	6.45359E-02	6.45359E-02	6.45359E-03
420	4.394E-08	4.394E-08	4.394E-08	4.394E-08	420	1.21570E-08	6.45359E-02	6.45359E-02	6.45359E-03
430	2.9394E-08	2.9394E-08	2.9394E-08	2.9394E-08	430	8.1570E-09	6.45359E-02	6.45359E-02	6.45359E-03
440	1.9394E-08	1.9394E-08	1.9394E-08	1.9394E-08	440	5.41570E-09	6.45359E-02	6.45359E-02	6.45359E-03
450	1.2394E-08	1.2394E-08	1.2394E-08	1.2394E-08	450	3.61570E-09	6.45359E-02	6.45359E-02	6.45359E-03
460	8.394E-09	8.394E-09	8.394E-09	8.394E-09	460	2.41570E-09	6.45359E-02	6.45359E-02	6.45359E-03
470	5.394E-09	5.394E-09	5.394E-09	5.394E-09	470	1.61570E-09	6.45359E-02	6.45359E-02	6.45359E-03
480	3.394E-09	3.394E-09	3.394E-09	3.394E-09	480	1.01570E-09	6.45359E-02	6.45359E-02	6.45359E-03
490	2.394E-09	2.394E-09	2.394E-09	2.394E-09	490	6.61570E-10	6.45359E-02	6.45359E-02	6.45359E-03
500	1.594E-09	1.594E-09	1.594E-09	1.594E-09	500	4.41570E-10	6.45359E-02	6.45359E-02	6.45359E-03

TABLE C10. NORMALIZED PHASE MATRIX FOR TYPE A AEROSOLS, MODEL 600,  $\lambda=0.55\mu$   
 $m=1.55-0.01i$

SCATTERING ANGLE	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100																																																																																																																																																																																																																																																								
6.0	2.98223E-01	2.98223E-01	2.98223E-01	-2.70223E-10	1.16425E-01	6.20444E-02	8.03315E-02	1.00839E-01	1.30839E-01	1.60839E-01	1.90839E-01	2.20839E-01	2.50839E-01	2.80839E-01	3.10839E-01	3.40839E-01	3.70839E-01	4.00839E-01	4.30839E-01	4.60839E-01	4.90839E-01	5.20839E-01	5.50839E-01	5.80839E-01	6.10839E-01	6.40839E-01	6.70839E-01	7.00839E-01	7.30839E-01	7.60839E-01	7.90839E-01	8.20839E-01	8.50839E-01	8.80839E-01	9.10839E-01	9.40839E-01	9.70839E-01	1.00839E-01	1.03839E-01	1.06839E-01	1.09839E-01	1.12839E-01	1.15839E-01	1.18839E-01	1.21839E-01	1.24839E-01	1.27839E-01	1.30839E-01	1.33839E-01	1.36839E-01	1.39839E-01	1.42839E-01	1.45839E-01	1.48839E-01	1.51839E-01	1.54839E-01	1.57839E-01	1.60839E-01	1.63839E-01	1.66839E-01	1.69839E-01	1.72839E-01	1.75839E-01	1.78839E-01	1.81839E-01	1.84839E-01	1.87839E-01	1.90839E-01	1.93839E-01	1.96839E-01	1.99839E-01	2.02839E-01	2.05839E-01	2.08839E-01	2.11839E-01	2.14839E-01	2.17839E-01	2.20839E-01	2.23839E-01	2.26839E-01	2.29839E-01	2.32839E-01	2.35839E-01	2.38839E-01	2.41839E-01	2.44839E-01	2.47839E-01	2.50839E-01	2.53839E-01	2.56839E-01	2.59839E-01	2.62839E-01	2.65839E-01	2.68839E-01	2.71839E-01	2.74839E-01	2.77839E-01	2.80839E-01	2.83839E-01	2.86839E-01	2.89839E-01	2.92839E-01	2.95839E-01	2.98839E-01	3.01839E-01	3.04839E-01	3.07839E-01	3.10839E-01	3.13839E-01	3.16839E-01	3.19839E-01	3.22839E-01	3.25839E-01	3.28839E-01	3.31839E-01	3.34839E-01	3.37839E-01	3.40839E-01	3.43839E-01	3.46839E-01	3.49839E-01	3.52839E-01	3.55839E-01	3.58839E-01	3.61839E-01	3.64839E-01	3.67839E-01	3.70839E-01	3.73839E-01	3.76839E-01	3.79839E-01	3.82839E-01	3.85839E-01	3.88839E-01	3.91839E-01	3.94839E-01	3.97839E-01	4.00839E-01	4.03839E-01	4.06839E-01	4.09839E-01	4.12839E-01	4.15839E-01	4.18839E-01	4.21839E-01	4.24839E-01	4.27839E-01	4.30839E-01	4.33839E-01	4.36839E-01	4.39839E-01	4.42839E-01	4.45839E-01	4.48839E-01	4.51839E-01	4.54839E-01	4.57839E-01	4.60839E-01	4.63839E-01	4.66839E-01	4.69839E-01	4.72839E-01	4.75839E-01	4.78839E-01	4.81839E-01	4.84839E-01	4.87839E-01	4.90839E-01	4.93839E-01	4.96839E-01	4.99839E-01	5.02839E-01	5.05839E-01	5.08839E-01	5.11839E-01	5.14839E-01	5.17839E-01	5.20839E-01	5.23839E-01	5.26839E-01	5.29839E-01	5.32839E-01	5.35839E-01	5.38839E-01	5.41839E-01	5.44839E-01	5.47839E-01	5.50839E-01	5.53839E-01	5.56839E-01	5.59839E-01	5.62839E-01	5.65839E-01	5.68839E-01	5.71839E-01	5.74839E-01	5.77839E-01	5.80839E-01	5.83839E-01	5.86839E-01	5.89839E-01	5.92839E-01	5.95839E-01	5.98839E-01	6.01839E-01	6.04839E-01	6.07839E-01	6.10839E-01	6.13839E-01	6.16839E-01	6.19839E-01	6.22839E-01	6.25839E-01	6.28839E-01	6.31839E-01	6.34839E-01	6.37839E-01	6.40839E-01	6.43839E-01	6.46839E-01	6.49839E-01	6.52839E-01	6.55839E-01	6.58839E-01	6.61839E-01	6.64839E-01	6.67839E-01	6.70839E-01	6.73839E-01	6.76839E-01	6.79839E-01	6.82839E-01	6.85839E-01	6.88839E-01	6.91839E-01	6.94839E-01	6.97839E-01	7.00839E-01	7.03839E-01	7.06839E-01	7.09839E-01	7.12839E-01	7.15839E-01	7.18839E-01	7.21839E-01	7.24839E-01	7.27839E-01	7.30839E-01	7.33839E-01	7.36839E-01	7.39839E-01	7.42839E-01	7.45839E-01	7.48839E-01	7.51839E-01	7.54839E-01	7.57839E-01	7.60839E-01	7.63839E-01	7.66839E-01	7.69839E-01	7.72839E-01	7.75839E-01	7.78839E-01	7.81839E-01	7.84839E-01	7.87839E-01	7.90839E-01	7.93839E-01	7.96839E-01	7.99839E-01	8.02839E-01	8.05839E-01	8.08839E-01	8.11839E-01	8.14839E-01	8.17839E-01	8.20839E-01	8.23839E-01	8.26839E-01	8.29839E-01	8.32839E-01	8.35839E-01	8.38839E-01	8.41839E-01	8.44839E-01	8.47839E-01	8.50839E-01	8.53839E-01	8.56839E-01	8.59839E-01	8.62839E-01	8.65839E-01	8.68839E-01	8.71839E-01	8.74839E-01	8.77839E-01	8.80839E-01	8.83839E-01	8.86839E-01	8.89839E-01	8.92839E-01	8.95839E-01	8.98839E-01	9.01839E-01	9.04839E-01	9.07839E-01	9.10839E-01	9.13839E-01	9.16839E-01	9.19839E-01	9.22839E-01	9.25839E-01	9.28839E-01	9.31839E-01	9.34839E-01	9.37839E-01	9.40839E-01	9.43839E-01	9.46839E-01	9.49839E-01	9.52839E-01	9.55839E-01	9.58839E-01	9.61839E-01	9.64839E-01	9.67839E-01	9.70839E-01	9.73839E-01	9.76839E-01	9.79839E-01	9.82839E-01	9.85839E-01	9.88839E-01	9.91839E-01	9.94839E-01	9.97839E-01	1.00839E-01



2.2.55-0.031

SCATTERING ANGLE	13	12	11	10	9	8	7	6	5	4	3	2	1	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480	481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500	501	502	503	504	505	506	507	508	509	510	511	512
6.31	3.176745E-01	3.173745E-01	3.170745E-01	3.167745E-01	3.164745E-01	3.161745E-01	3.158745E-01	3.155745E-01	3.152745E-01	3.149745E-01	3.146745E-01	3.143745E-01	3.140745E-01	3.137745E-01	3.134745E-01	3.131745E-01	3.128745E-01	3.125745E-01	3.122745E-01	3.119745E-01	3.116745E-01	3.113745E-01	3.110745E-01	3.107745E-01	3.104745E-01	3.101745E-01	3.098745E-01	3.095745E-01	3.092745E-01	3.089745E-01	3.086745E-01	3.083745E-01	3.080745E-01	3.077745E-01	3.074745E-01	3.071745E-01	3.068745E-01	3.065745E-01	3.062745E-01	3.059745E-01	3.056745E-01	3.053745E-01	3.050745E-01	3.047745E-01	3.044745E-01	3.041745E-01	3.038745E-01	3.035745E-01	3.032745E-01	3.029745E-01	3.026745E-01	3.023745E-01	3.020745E-01	3.017745E-01	3.014745E-01	3.011745E-01	3.008745E-01	3.005745E-01	3.002745E-01	2.999745E-01	2.996745E-01	2.993745E-01	2.990745E-01	2.987745E-01	2.984745E-01	2.981745E-01	2.978745E-01	2.975745E-01	2.972745E-01	2.969745E-01	2.966745E-01	2.963745E-01	2.960745E-01	2.957745E-01	2.954745E-01	2.951745E-01	2.948745E-01	2.945745E-01	2.942745E-01	2.939745E-01	2.936745E-01	2.933745E-01	2.930745E-01	2.927745E-01	2.924745E-01	2.921745E-01	2.918745E-01	2.915745E-01	2.912745E-01	2.909745E-01	2.906745E-01	2.903745E-01	2.900745E-01	2.897745E-01	2.894745E-01	2.891745E-01	2.888745E-01	2.885745E-01	2.882745E-01	2.879745E-01	2.876745E-01	2.873745E-01	2.870745E-01	2.867745E-01	2.864745E-01	2.861745E-01	2.858745E-01	2.855745E-01	2.852745E-01	2.849745E-01	2.846745E-01	2.843745E-01	2.840745E-01	2.837745E-01	2.834745E-01	2.831745E-01	2.828745E-01	2.825745E-01	2.822745E-01	2.819745E-01	2.816745E-01	2.813745E-01	2.810745E-01	2.807745E-01	2.804745E-01	2.801745E-01	2.798745E-01	2.795745E-01	2.792745E-01	2.789745E-01	2.786745E-01	2.783745E-01	2.780745E-01	2.777745E-01	2.774745E-01	2.771745E-01	2.768745E-01	2.765745E-01	2.762745E-01	2.759745E-01	2.756745E-01	2.753745E-01	2.750745E-01	2.747745E-01	2.744745E-01	2.741745E-01	2.738745E-01	2.735745E-01	2.732745E-01	2.729745E-01	2.726745E-01	2.723745E-01	2.720745E-01	2.717745E-01	2.714745E-01	2.711745E-01	2.708745E-01	2.705745E-01	2.702745E-01	2.699745E-01	2.696745E-01	2.693745E-01	2.690745E-01	2.687745E-01	2.684745E-01	2.681745E-01	2.678745E-01	2.675745E-01	2.672745E-01	2.669745E-01	2.666745E-01	2.663745E-01	2.660745E-01	2.657745E-01	2.654745E-01	2.651745E-01	2.648745E-01	2.645745E-01	2.642745E-01	2.639745E-01	2.636745E-01	2.633745E-01	2.630745E-01	2.627745E-01	2.624745E-01	2.621745E-01	2.618745E-01	2.615745E-01	2.612745E-01	2.609745E-01	2.606745E-01	2.603745E-01	2.600745E-01	2.597745E-01	2.594745E-01	2.591745E-01	2.588745E-01	2.585745E-01	2.582745E-01	2.579745E-01	2.576745E-01	2.573745E-01	2.570745E-01	2.567745E-01	2.564745E-01	2.561745E-01	2.558745E-01	2.555745E-01	2.552745E-01	2.549745E-01	2.546745E-01	2.543745E-01	2.540745E-01	2.537745E-01	2.534745E-01	2.531745E-01	2.528745E-01	2.525745E-01	2.522745E-01	2.519745E-01	2.516745E-01	2.513745E-01	2.510745E-01	2.507745E-01	2.504745E-01	2.501745E-01	2.498745E-01	2.495745E-01	2.492745E-01	2.489745E-01	2.486745E-01	2.483745E-01	2.480745E-01	2.477745E-01	2.474745E-01	2.471745E-01	2.468745E-01	2.465745E-01	2.462745E-01	2.459745E-01	2.456745E-01	2.453745E-01	2.450745E-01	2.447745E-01	2.444745E-01	2.441745E-01	2.438745E-01	2.435745E-01	2.432745E-01	2.429745E-01	2.426745E-01	2.423745E-01	2.420745E-01	2.417745E-01	2.414745E-01	2.411745E-01	2.408745E-01	2.405745E-01	2.402745E-01	2.399745E-01	2.396745E-01	2.393745E-01	2.390745E-01	2.387745E-01	2.384745E-01	2.381745E-01	2.378745E-01	2.375745E-01	2.372745E-01	2.369745E-01	2.366745E-01	2.363745E-01	2.360745E-01	2.357745E-01	2.354745E-01	2.351745E-01	2.348745E-01	2.345745E-01	2.342745E-01	2.339745E-01	2.336745E-01	2.333745E-01	2.330745E-01	2.327745E-01	2.324745E-01	2.321745E-01	2.318745E-01	2.315745E-01	2.312745E-01	2.309745E-01	2.306745E-01	2.303745E-01	2.300745E-01	2.297745E-01	2.294745E-01	2.291745E-01	2.288745E-01	2.285745E-01	2.282745E-01	2.279745E-01	2.276745E-01	2.273745E-01	2.270745E-01	2.267745E-01	2.264745E-01	2.261745E-01	2.258745E-01	2.255745E-01	2.252745E-01	2.249745E-01	2.246745E-01	2.243745E-01	2.240745E-01	2.237745E-01	2.234745E-01	2.231745E-01	2.228745E-01	2.225745E-01	2.222745E-01	2.219745E-01	2.216745E-01	2.213745E-01	2.210745E-01	2.207745E-01	2.204745E-01	2.201745E-01	2.198745E-01	2.195745E-01	2.192745E-01	2.189745E-01	2.186745E-01	2.183745E-01	2.180745E-01	2.177745E-01	2.174745E-01	2.171745E-01	2.168745E-01	2.165745E-01	2.162745E-01	2.159745E-01	2.156745E-01	2.153745E-01	2.150745E-01	2.147745E-01	2.144745E-01	2.141745E-01	2.138745E-01	2.135745E-01	2.132745E-01	2.129745E-01	2.126745E-01	2.123745E-01	2.120745E-01	2.117745E-01	2.114745E-01	2.111745E-01	2.108745E-01	2.105745E-01	2.102745E-01	2.099745E-01	2.096745E-01	2.093745E-01	2.090745E-01	2.087745E-01	2.084745E-01	2.081745E-01	2.078745E-01	2.075745E-01	2.072745E-01	2.069745E-01	2.066745E-01	2.063745E-01	2.060745E-01	2.057745E-01	2.054745E-01	2.051745E-01	2.048745E-01	2.045745E-01	2.042745E-01	2.039745E-01	2.036745E-01	2.033745E-01	2.030745E-01	2.027745E-01	2.024745E-01	2.021745E-01	2.018745E-01	2.015745E-01	2.012745E-01	2.009745E-01	2.006745E-01	2.003745E-01	2.000745E-01	1.997745E-01	1.994745E-01	1.991745E-01	1.988745E-01	1.985745E-01	1.982745E-01	1.979745E-01	1.976745E-01	1.973745E-01	1.970745E-01	1.967745E-01	1.964745E-01	1.961745E-01	1.958745E-01	1.955745E-01	1.952745E-01	1.949745E-01	1.946745E-01	1.943745E-01	1.940745E-01	1.937745E-01	1.934745E-01	1.931745E-01	1.928745E-01	1.925745E-01	1.922745E-01	1.919745E-01	1.916745E-01	1.913745E-01	1.910745E-01	1.907745E-01	1.904745E-01	1.901745E-01	1.898745E-01	1.895745E-01	1.892745E-01	1.889745E-01	1.886745E-01	1.883745E-01	1.880745E-01	1.877745E-01	1.874745E-01	1.871745E-01	1.868745E-01	1.865745E-01	1.862745E-01	1.859745E-01	1.856745E-01	1.853745E-01	1.850745E-01	1.847745E-01	1.844745E-01	1.841745E-01	1.838745E-01	1.835745E-01	1.832745E-01	1.829745E-01	1.826745E-01	1.823745E-01	1.820745E-01	1.817745E-01	1.814745E-01	1.811745E-01	1.808745E-01	1.805745E-01	1.802745E-01	1.799745E-01	1.796745E-01	1.793745E-01	1.790745E-01	1.787745E-01	1.784745E-01	1.781745E-01	1.778745E-01	1.775745E-01	1.772745E-01	1.769745E-01	1.766745E-01	1.763745E-01	1.760745E-01	1.757745E-01	1.754745E-01	1.751745E-01	1.748745E-01	1.745745E-01	1.742745E-01	1.739745E-01	1.736745E-01	1.733745E-01	1.730745E-01	1.727745E-01	1.724745E-01	1.721745E-01	1.718745E-01																																							



TABLE C12. NORMALIZED P SF MIX FOR TYPE A AEROSOLS, MODEL 600,  $\lambda = 0.60$   
 $M = 1.55 - 0.01$

SCATTERING ANGLE	11	12	13	14	SCATTERING ANGLE	13	12	13	14
0.0	2.740678E-01	2.740678E-01	2.740678E-01	2.740678E-01	60.0	2.534545E-02	5.082413E-02	5.082413E-02	5.082413E-02
0.5	2.732000E-01	2.732000E-01	2.732000E-01	2.732000E-01	62.0	6.10372E-02	6.10372E-02	6.10372E-02	6.10372E-02
1.0	2.723200E-01	2.723200E-01	2.723200E-01	2.723200E-01	64.0	2.16646E-02	2.16646E-02	2.16646E-02	2.16646E-02
1.5	2.694300E-01	2.694300E-01	2.694300E-01	2.694300E-01	66.0	3.59363E-02	3.59363E-02	3.59363E-02	3.59363E-02
2.0	2.643400E-01	2.643400E-01	2.643400E-01	2.643400E-01	68.0	6.43979E-02	6.43979E-02	6.43979E-02	6.43979E-02
2.5	2.567240E-01	2.567240E-01	2.567240E-01	2.567240E-01	70.0	5.14361E-02	5.14361E-02	5.14361E-02	5.14361E-02
3.0	2.462760E-01	2.462760E-01	2.462760E-01	2.462760E-01	72.0	4.03211E-02	4.03211E-02	4.03211E-02	4.03211E-02
3.5	2.33509E-01	2.33509E-01	2.33509E-01	2.33509E-01	74.0	3.35929E-02	3.35929E-02	3.35929E-02	3.35929E-02
4.0	2.19099E-01	2.19099E-01	2.19099E-01	2.19099E-01	76.0	2.83243E-02	2.83243E-02	2.83243E-02	2.83243E-02
4.5	2.03203E-01	2.03203E-01	2.03203E-01	2.03203E-01	78.0	2.43243E-02	2.43243E-02	2.43243E-02	2.43243E-02
5.0	1.85203E-01	1.85203E-01	1.85203E-01	1.85203E-01	80.0	2.08184E-02	2.08184E-02	2.08184E-02	2.08184E-02
5.5	1.64708E-01	1.64708E-01	1.64708E-01	1.64708E-01	82.0	1.82328E-02	1.82328E-02	1.82328E-02	1.82328E-02
6.0	1.41708E-01	1.41708E-01	1.41708E-01	1.41708E-01	84.0	1.55246E-02	1.55246E-02	1.55246E-02	1.55246E-02
6.5	1.16208E-01	1.16208E-01	1.16208E-01	1.16208E-01	86.0	1.27308E-02	1.27308E-02	1.27308E-02	1.27308E-02
7.0	9.12099E-02	9.12099E-02	9.12099E-02	9.12099E-02	88.0	1.08272E-02	1.08272E-02	1.08272E-02	1.08272E-02
7.5	6.74067E-02	6.74067E-02	6.74067E-02	6.74067E-02	90.0	9.12099E-03	9.12099E-03	9.12099E-03	9.12099E-03
8.0	4.54067E-02	4.54067E-02	4.54067E-02	4.54067E-02	92.0	7.68159E-03	7.68159E-03	7.68159E-03	7.68159E-03
8.5	2.74067E-02	2.74067E-02	2.74067E-02	2.74067E-02	94.0	6.43979E-03	6.43979E-03	6.43979E-03	6.43979E-03
9.0	1.53454E-02	1.53454E-02	1.53454E-02	1.53454E-02	96.0	5.34744E-03	5.34744E-03	5.34744E-03	5.34744E-03
9.5	8.54067E-03	8.54067E-03	8.54067E-03	8.54067E-03	98.0	4.03211E-03	4.03211E-03	4.03211E-03	4.03211E-03
10.0	4.54067E-03	4.54067E-03	4.54067E-03	4.54067E-03	100.0	3.17406E-03	3.17406E-03	3.17406E-03	3.17406E-03
10.5	2.74067E-03	2.74067E-03	2.74067E-03	2.74067E-03	102.0	2.53454E-03	2.53454E-03	2.53454E-03	2.53454E-03
11.0	1.53454E-03	1.53454E-03	1.53454E-03	1.53454E-03	104.0	2.16646E-03	2.16646E-03	2.16646E-03	2.16646E-03
11.5	8.54067E-04	8.54067E-04	8.54067E-04	8.54067E-04	106.0	1.82328E-03	1.82328E-03	1.82328E-03	1.82328E-03
12.0	4.54067E-04	4.54067E-04	4.54067E-04	4.54067E-04	108.0	1.55246E-03	1.55246E-03	1.55246E-03	1.55246E-03
12.5	2.74067E-04	2.74067E-04	2.74067E-04	2.74067E-04	110.0	1.27308E-03	1.27308E-03	1.27308E-03	1.27308E-03
13.0	1.53454E-04	1.53454E-04	1.53454E-04	1.53454E-04	112.0	1.08272E-03	1.08272E-03	1.08272E-03	1.08272E-03
13.5	8.54067E-05	8.54067E-05	8.54067E-05	8.54067E-05	114.0	9.12099E-04	9.12099E-04	9.12099E-04	9.12099E-04
14.0	4.54067E-05	4.54067E-05	4.54067E-05	4.54067E-05	116.0	7.68159E-04	7.68159E-04	7.68159E-04	7.68159E-04
14.5	2.74067E-05	2.74067E-05	2.74067E-05	2.74067E-05	118.0	6.43979E-04	6.43979E-04	6.43979E-04	6.43979E-04
15.0	1.53454E-05	1.53454E-05	1.53454E-05	1.53454E-05	120.0	5.34744E-04	5.34744E-04	5.34744E-04	5.34744E-04
15.5	8.54067E-06	8.54067E-06	8.54067E-06	8.54067E-06	122.0	4.03211E-04	4.03211E-04	4.03211E-04	4.03211E-04
16.0	4.54067E-06	4.54067E-06	4.54067E-06	4.54067E-06	124.0	3.17406E-04	3.17406E-04	3.17406E-04	3.17406E-04
16.5	2.74067E-06	2.74067E-06	2.74067E-06	2.74067E-06	126.0	2.53454E-04	2.53454E-04	2.53454E-04	2.53454E-04
17.0	1.53454E-06	1.53454E-06	1.53454E-06	1.53454E-06	128.0	2.16646E-04	2.16646E-04	2.16646E-04	2.16646E-04
17.5	8.54067E-07	8.54067E-07	8.54067E-07	8.54067E-07	130.0	1.82328E-04	1.82328E-04	1.82328E-04	1.82328E-04
18.0	4.54067E-07	4.54067E-07	4.54067E-07	4.54067E-07	132.0	1.55246E-04	1.55246E-04	1.55246E-04	1.55246E-04
18.5	2.74067E-07	2.74067E-07	2.74067E-07	2.74067E-07	134.0	1.27308E-04	1.27308E-04	1.27308E-04	1.27308E-04
19.0	1.53454E-07	1.53454E-07	1.53454E-07	1.53454E-07	136.0	1.08272E-04	1.08272E-04	1.08272E-04	1.08272E-04
19.5	8.54067E-08	8.54067E-08	8.54067E-08	8.54067E-08	138.0	9.12099E-05	9.12099E-05	9.12099E-05	9.12099E-05
20.0	4.54067E-08	4.54067E-08	4.54067E-08	4.54067E-08	140.0	7.68159E-05	7.68159E-05	7.68159E-05	7.68159E-05
20.5	2.74067E-08	2.74067E-08	2.74067E-08	2.74067E-08	142.0	6.43979E-05	6.43979E-05	6.43979E-05	6.43979E-05
21.0	1.53454E-08	1.53454E-08	1.53454E-08	1.53454E-08	144.0	5.34744E-05	5.34744E-05	5.34744E-05	5.34744E-05
21.5	8.54067E-09	8.54067E-09	8.54067E-09	8.54067E-09	146.0	4.03211E-05	4.03211E-05	4.03211E-05	4.03211E-05
22.0	4.54067E-09	4.54067E-09	4.54067E-09	4.54067E-09	148.0	3.17406E-05	3.17406E-05	3.17406E-05	3.17406E-05
22.5	2.74067E-09	2.74067E-09	2.74067E-09	2.74067E-09	150.0	2.53454E-05	2.53454E-05	2.53454E-05	2.53454E-05
23.0	1.53454E-09	1.53454E-09	1.53454E-09	1.53454E-09	152.0	2.16646E-05	2.16646E-05	2.16646E-05	2.16646E-05
23.5	8.54067E-10	8.54067E-10	8.54067E-10	8.54067E-10	154.0	1.82328E-05	1.82328E-05	1.82328E-05	1.82328E-05
24.0	4.54067E-10	4.54067E-10	4.54067E-10	4.54067E-10	156.0	1.55246E-05	1.55246E-05	1.55246E-05	1.55246E-05
24.5	2.74067E-10	2.74067E-10	2.74067E-10	2.74067E-10	158.0	1.27308E-05	1.27308E-05	1.27308E-05	1.27308E-05
25.0	1.53454E-10	1.53454E-10	1.53454E-10	1.53454E-10	160.0	1.08272E-05	1.08272E-05	1.08272E-05	1.08272E-05
25.5	8.54067E-11	8.54067E-11	8.54067E-11	8.54067E-11	162.0	9.12099E-06	9.12099E-06	9.12099E-06	9.12099E-06
26.0	4.54067E-11	4.54067E-11	4.54067E-11	4.54067E-11	164.0	7.68159E-06	7.68159E-06	7.68159E-06	7.68159E-06
26.5	2.74067E-11	2.74067E-11	2.74067E-11	2.74067E-11	166.0	6.43979E-06	6.43979E-06	6.43979E-06	6.43979E-06
27.0	1.53454E-11	1.53454E-11	1.53454E-11	1.53454E-11	168.0	5.34744E-06	5.34744E-06	5.34744E-06	5.34744E-06
27.5	8.54067E-12	8.54067E-12	8.54067E-12	8.54067E-12	170.0	4.03211E-06	4.03211E-06	4.03211E-06	4.03211E-06
28.0	4.54067E-12	4.54067E-12	4.54067E-12	4.54067E-12	172.0	3.17406E-06	3.17406E-06	3.17406E-06	3.17406E-06
28.5	2.74067E-12	2.74067E-12	2.74067E-12	2.74067E-12	174.0	2.53454E-06	2.53454E-06	2.53454E-06	2.53454E-06
29.0	1.53454E-12	1.53454E-12	1.53454E-12	1.53454E-12	176.0	2.16646E-06	2.16646E-06	2.16646E-06	2.16646E-06
29.5	8.54067E-13	8.54067E-13	8.54067E-13	8.54067E-13	178.0	1.82328E-06	1.82328E-06	1.82328E-06	1.82328E-06
30.0	4.54067E-13	4.54067E-13	4.54067E-13	4.54067E-13	180.0	1.55246E-06	1.55246E-06	1.55246E-06	1.55246E-06
30.5	2.74067E-13	2.74067E-13	2.74067E-13	2.74067E-13	182.0	1.27308E-06	1.27308E-06	1.27308E-06	1.27308E-06
31.0	1.53454E-13	1.53454E-13	1.53454E-13	1.53454E-13	184.0	1.08272E-06	1.08272E-06	1.08272E-06	1.08272E-06
31.5	8.54067E-14	8.54067E-14	8.54067E-14	8.54067E-14	186.0	9.12099E-07	9.12099E-07	9.12099E-07	9.12099E-07
32.0	4.54067E-14	4.54067E-14	4.54067E-14	4.54067E-14	188.0	7.68159E-07	7.68159E-07	7.68159E-07	7.68159E-07
32.5	2.74067E-14	2.74067E-14	2.74067E-14	2.74067E-14	190.0	6.43979E-07	6.43979E-07	6.43979E-07	6.43979E-07
33.0	1.53454E-14	1.53454E-14	1.53454E-14	1.53454E-14	192.0	5.34744E-07	5.34744E-07	5.34744E-07	5.34744E-07
33.5	8.54067E-15	8.54067E-15	8.54067E-15	8.54067E-15	194.0	4.03211E-07	4.03211E-07	4.03211E-07	4.03211E-07
34.0	4.54067E-15	4.54067E-15	4.54067E-15	4.54067E-15	196.0	3.17406E-07	3.17406E-07	3.17406E-07	3.17406E-07
34.5	2.74067E-15	2.74067E-15	2.74067E-15	2.74067E-15	198.0	2.53454E-07	2.53454E-07	2.53454E-07	2.53454E-07
35.0	1.53454E-15	1.53454E-15	1.53454E-15	1.53454E-15	200.0	2.16646E-07	2.16646E-07	2.16646E-07	2.16646E-07
35.5	8.54067E-16	8.54067E-16	8.54067E-16	8.54067E-16	202.0	1.82328E-07	1.82328E-07	1.82328E-07	1.82328E-07
36.0	4.54067E-16	4.54067E-16	4.54067E-16	4.54067E-16	204.0	1.55246E-07	1.55246E-07	1.55246E-07	1.55246E-07
36.5	2.74067E-16	2.74067E-16	2.74067E-16	2.74067E-16	206.0	1.27308E-07	1.27308E-07	1.27308E-07	1.27308E-07
37.0	1.53454E-16	1.53454E-16	1.53454E-16	1.53454E-16	208.0	1.08272E-07	1.08272E-07	1.08272E-07	1.08272E-07
37.5	8.54067E-17	8.54067E-17	8.54067E-17	8.54067E-17	210.0	9.12099E-08	9.12099E-08	9.12099E-08	9.12099E-08
38.0	4.54067E-17	4.54067E-17	4.54067E-17	4.54067E-17	212.0	7.68159E-08	7.68159E-08	7.68159E-08	7.68159E-08
38.5	2.74067E-17	2.74067E-17	2.74067E-17	2.74067E-17	214.0	6.43979E-08	6.43979E-08	6.43979E-08	6.43979E-08
39.0	1.53454E-17	1.53454E-17	1.53454E-17	1.53454E-17	216.0	5.34744E-08	5.34744E-08	5.34744E-08	5.34744E-08
39.5	8.54067E-18	8.54067E-18	8.54067E-18	8.					

**APPENDIX D.**

**Normalized Phase Matrices for Type C Aerosols**

TABLE D1. NORMALIZED PHASE MATRIX FOR TYPE C AEROSOLS, MODEL 200,  $\lambda=0.45\mu$

[illegible]





[illegible]

TABLE D5. NORMALIZED PHASE MATRIX FOR TYPE C AEROSOLS, MODEL 300,  $\lambda=0.45\mu$

[illegible]

TABLE D6. NORMALIZED PHASE MATRIX FOR TYPE C AEROSOLS, MODEL 300,  $\lambda=0.55\mu$

[illegible]



01-550-017

SCATTERING ANGLE	15	12	13	14	15	12	13	14	15	12	13	14
0-00	6-374365-00	6-352026-00	6-373074-00	6-360415-00	6-374365-00	6-352026-00	6-373074-00	6-360415-00	6-374365-00	6-352026-00	6-373074-00	6-360415-00
10	6-365575-01	6-353502-01	6-365593-01	6-353502-01	6-365575-01	6-353502-01	6-365593-01	6-353502-01	6-365575-01	6-353502-01	6-365593-01	6-353502-01
20	6-363305-00	6-353305-00	6-363305-00	6-353305-00	6-363305-00	6-353305-00	6-363305-00	6-353305-00	6-363305-00	6-353305-00	6-363305-00	6-353305-00
30	6-359980-00	6-353975-01	6-359980-00	6-353975-01	6-359980-00	6-353975-01	6-359980-00	6-353975-01	6-359980-00	6-353975-01	6-359980-00	6-353975-01
40	6-356655-00	6-353970-01	6-356655-00	6-353970-01	6-356655-00	6-353970-01	6-356655-00	6-353970-01	6-356655-00	6-353970-01	6-356655-00	6-353970-01
50	6-353330-00	6-353965-01	6-353330-00	6-353965-01	6-353330-00	6-353965-01	6-353330-00	6-353965-01	6-353330-00	6-353965-01	6-353330-00	6-353965-01
60	6-349995-00	6-353960-01	6-349995-00	6-353960-01	6-349995-00	6-353960-01	6-349995-00	6-353960-01	6-349995-00	6-353960-01	6-349995-00	6-353960-01
70	6-346660-00	6-353955-01	6-346660-00	6-353955-01	6-346660-00	6-353955-01	6-346660-00	6-353955-01	6-346660-00	6-353955-01	6-346660-00	6-353955-01
80	6-343325-00	6-353950-01	6-343325-00	6-353950-01	6-343325-00	6-353950-01	6-343325-00	6-353950-01	6-343325-00	6-353950-01	6-343325-00	6-353950-01
90	6-339990-00	6-353945-01	6-339990-00	6-353945-01	6-339990-00	6-353945-01	6-339990-00	6-353945-01	6-339990-00	6-353945-01	6-339990-00	6-353945-01
100	6-336655-00	6-353940-01	6-336655-00	6-353940-01	6-336655-00	6-353940-01	6-336655-00	6-353940-01	6-336655-00	6-353940-01	6-336655-00	6-353940-01
110	6-333320-00	6-353935-01	6-333320-00	6-353935-01	6-333320-00	6-353935-01	6-333320-00	6-353935-01	6-333320-00	6-353935-01	6-333320-00	6-353935-01
120	6-329985-00	6-353930-01	6-329985-00	6-353930-01	6-329985-00	6-353930-01	6-329985-00	6-353930-01	6-329985-00	6-353930-01	6-329985-00	6-353930-01
130	6-326650-00	6-353925-01	6-326650-00	6-353925-01	6-326650-00	6-353925-01	6-326650-00	6-353925-01	6-326650-00	6-353925-01	6-326650-00	6-353925-01
140	6-323315-00	6-353920-01	6-323315-00	6-353920-01	6-323315-00	6-353920-01	6-323315-00	6-353920-01	6-323315-00	6-353920-01	6-323315-00	6-353920-01
150	6-319980-00	6-353915-01	6-319980-00	6-353915-01	6-319980-00	6-353915-01	6-319980-00	6-353915-01	6-319980-00	6-353915-01	6-319980-00	6-353915-01
160	6-316645-00	6-353910-01	6-316645-00	6-353910-01	6-316645-00	6-353910-01	6-316645-00	6-353910-01	6-316645-00	6-353910-01	6-316645-00	6-353910-01
170	6-313310-00	6-353905-01	6-313310-00	6-353905-01	6-313310-00	6-353905-01	6-313310-00	6-353905-01	6-313310-00	6-353905-01	6-313310-00	6-353905-01
180	6-309975-00	6-353900-01	6-309975-00	6-353900-01	6-309975-00	6-353900-01	6-309975-00	6-353900-01	6-309975-00	6-353900-01	6-309975-00	6-353900-01
190	6-306640-00	6-353895-01	6-306640-00	6-353895-01	6-306640-00							

SCATTERING ANGLE	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480	481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500	501	502	503	504	505	506	507	508	509	510	511	512	513	514	515	516	517	518	519	520	521	522	523	524	525	526	527	528	529	530	
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44-38861-1037

SCATTERING ANGLE	11	12	13	14	15	16
0.00	1.362762E+00	1.362762E+00	1.362762E+00	-1.014266E-15	69.89	-1.038222E-02
0.10	1.373316E+00	1.373316E+00	1.373316E+00	-3.766413E-15	92.00	-1.035938E-02
0.20	1.383335E+00	1.383335E+00	1.383335E+00	-2.336430E-15	92.00	-1.034521E-02
0.30	1.392880E+00	1.392880E+00	1.392880E+00	-6.757836E-16	90.00	-1.033174E-02
0.40	1.401920E+00	1.401920E+00	1.401920E+00	-6.757836E-16	88.00	-1.031852E-02
0.50	1.410480E+00	1.410480E+00	1.410480E+00	-6.757836E-16	86.00	-1.030558E-02
0.60	1.418580E+00	1.418580E+00	1.418580E+00	-6.757836E-16	84.00	-1.029288E-02
0.70	1.426240E+00	1.426240E+00	1.426240E+00	-6.757836E-16	82.00	-1.028045E-02
0.80	1.433480E+00	1.433480E+00	1.433480E+00	-6.757836E-16	80.00	-1.026825E-02
0.90	1.440320E+00	1.440320E+00	1.440320E+00	-6.757836E-16	78.00	-1.025625E-02
1.00	1.446780E+00	1.446780E+00	1.446780E+00	-6.757836E-16	76.00	-1.024445E-02
1.10	1.452880E+00	1.452880E+00	1.452880E+00	-6.757836E-16	74.00	-1.023285E-02
1.20	1.458640E+00	1.458640E+00	1.458640E+00	-6.757836E-16	72.00	-1.022145E-02
1.30	1.464080E+00	1.464080E+00	1.464080E+00	-6.757836E-16	70.00	-1.021025E-02
1.40	1.469220E+00	1.469220E+00	1.469220E+00	-6.757836E-16	68.00	-1.019925E-02
1.50	1.474080E+00	1.474080E+00	1.474080E+00	-6.757836E-16	66.00	-1.018845E-02
1.60	1.478680E+00	1.478680E+00	1.478680E+00	-6.757836E-16	64.00	-1.017785E-02
1.70	1.483040E+00	1.483040E+00	1.483040E+00	-6.757836E-16	62.00	-1.016745E-02
1.80	1.487180E+00	1.487180E+00	1.487180E+00	-6.757836E-16	60.00	-1.015725E-02
1.90	1.491120E+00	1.491120E+00	1.491120E+00	-6.757836E-16	58.00	-1.014725E-02
2.00	1.494880E+00	1.494880E+00	1.494880E+00	-6.757836E-16	56.00	-1.013745E-02
2.10	1.498380E+00	1.498380E+00	1.498380E+00	-6.757836E-16	54.00	-1.012785E-02
2.20	1.501640E+00	1.501640E+00	1.501640E+00	-6.757836E-16	52.00	-1.011845E-02
2.30	1.504680E+00	1.504680E+00	1.504680E+00	-6.757836E-16	50.00	-1.010925E-02
2.40	1.507520E+00	1.507520E+00	1.507520E+00	-6.757836E-16	48.00	-1.010025E-02
2.50	1.510180E+00	1.510180E+00	1.510180E+00	-6.757836E-16	46.00	-1.009145E-02
2.60	1.512680E+00	1.512680E+00	1.512680E+00	-6.757836E-16	44.00	-1.008285E-02
2.70	1.515040E+00	1.515040E+00	1.515040E+00	-6.757836E-16	42.00	-1.007445E-02
2.80	1.517280E+00	1.517280E+00	1.517280E+00	-6.757836E-16	40.00	-1.006625E-02
2.90	1.519400E+00	1.519400E+00	1.519400E+00	-6.757836E-16	38.00	-1.005825E-02
3.00	1.521420E+00	1.521420E+00	1.521420E+00	-6.757836E-16	36.00	-1.005045E-02
3.10	1.523360E+00	1.523360E+00	1.523360E+00	-6.757836E-16	34.00	-1.004285E-02
3.20	1.525220E+00	1.525220E+00	1.525220E+00	-6.757836E-16	32.00	-1.003545E-02
3.30	1.527020E+00	1.527020E+00	1.527020E+00	-6.757836E-16	30.00	-1.002825E-02
3.40	1.528760E+00	1.528760E+00	1.528760E+00	-6.757836E-16	28.00	-1.002125E-02
3.50	1.530440E+00	1.530440E+00	1.530440E+00	-6.757836E-16	26.00	-1.001445E-02
3.60	1.532080E+00	1.532080E+00	1.532080E+00	-6.757836E-16	24.00	-1.0007

TABLE D11. NORMALIZED PHASE MATRIX FOR TYPE C AEROSOLS, MODEL 400,  $\lambda=0.70\mu$ 

44-38861-1011

[illegible]



SCATTERING ANGLE	11	12	13	14	15	16
0.00	3.460578E+00	3.460374E+00	3.400675E+00	-3.111235E-13	60.00	-9.497613E-17
1.00	3.333933E+00	3.333844E+00	3.333844E+00	3.333844E+00	60.00	-9.497613E-17
2.00	3.159073E+00	3.159069E+00	3.159069E+00	3.159069E+00	60.00	-9.497613E-17
3.00	2.938081E+00	2.938078E+00	2.938078E+00	2.938078E+00	60.00	-9.497613E-17
4.00	2.659595E+00	2.659591E+00	2.659591E+00	2.659591E+00	60.00	-9.497613E-17
5.00	2.331381E+00	2.331378E+00	2.331378E+00	2.331378E+00	60.00	-9.497613E-17
6.00	2.003736E+00	2.003732E+00	2.003732E+00	2.003732E+00	60.00	-9.497613E-17
7.00	1.682494E+00	1.682490E+00	1.682490E+00	1.682490E+00	60.00	-9.497613E-17
8.00	1.364803E+00	1.364800E+00	1.364800E+00	1.364800E+00	60.00	-9.497613E-17
9.00	1.055828E+00	1.055825E+00	1.055825E+00	1.055825E+00	60.00	-9.497613E-17
10.00	7.491175E-01	7.491172E-01	7.491172E-01	7.491172E-01	60.00	-9.497613E-17
11.00	4.404978E-01	4.404975E-01	4.404975E-01	4.404975E-01	60.00	-9.497613E-17
12.00	1.250735E-01	1.250732E-01	1.250732E-01	1.250732E-01	60.00	-9.497613E-17
13.00	2.844280E-02	2.844277E-02	2.844277E-02	2.844277E-02	60.00	-9.497613E-17
14.00	1.430385E-03	1.430382E-03	1.430382E-03	1.430382E-03	60.00	-9.497613E-17
15.00	7.250735E-05	7.250732E-05	7.250732E-05	7.250732E-05	60.00	-9.497613E-17
16.00	3.625367E-06	3.625364E-06	3.625364E-06	3.625364E-06	60.00	-9.497613E-17
17.00	1.812683E-07	1.812680E-07	1.812680E-07	1.812680E-07	60.00	-9.497613E-17
18.00	9.063415E-09	9.063412E-09	9.063412E-09	9.063412E-09	60.00	-9.497613E-17
19.00	4.531708E-10	4.531705E-10	4.531705E-10	4.531705E-10	60.00	-9.497613E-17
20.00	2.265854E-11	2.265851E-11	2.265851E-11	2.265851E-11	60.00	-9.497613E-17
21.00	1.132927E-12	1.132924E-12	1.132924E-12	1.132924E-12	60.00	-9.497613E-17
22.00	5.664635E-14	5.664632E-14	5.664632E-14	5.664632E-14	60.00	-9.497613E-17
23.00	2.832317E-15	2.832314E-15	2.832314E-15	2.832314E-15	60.00	-9.497613E-17
24.00	1.416158E-16	1.416155E-16	1.416155E-16	1.416155E-16	60.00	-9.497613E-17
25.00	7.080790E-18	7.080787E-18	7.080787E-18	7.080787E-18	60.00	-9.497613E-17
26.00	3.540395E-19	3.540392E-19	3.540392E-19	3.540392E-19	60.00	-9.497613E-17
27.00	1.770197E-20	1.770194E-20	1.770194E-20	1.770194E-20	60.00	-9.497613E-17
28.00	8.850985E-22	8.850982E-22	8.850982E-22	8.850982E-22	60.00	-9.497613E-17
29.00	4.425492E-23	4.425489E-23	4.425489E-23	4.425489E-23	60.00	-9.497613E-17
30.00	2.212746E-24	2.212743E-24	2.212743E-24	2.212743E-24	60.00	-9.497613E-17
31.00	1.106373E-25	1.106370E-25	1.106370E-25	1.106370E-25	60.00	-9.497613E-17
32.00	5.531865E-27	5.531862E-27	5.531862E-27	5.531862E-27	60.00	-9.497613E-17
33.00	2.765932E-28	2.765929E-28	2.765929E-28	2.765929E-28	60.00	-9.497613E-17
34.00	1.382966E-29	1.382963E-29	1.382963E-29	1.382963E-29	60.00	-9.497613E-17
35.00	6.914830E-31	6.914827E-31	6.914827E-31	6.914827E-31	60.00	-9.497613E-17
36.00	3.457415E-32	3.457412E-32	3.457412E-32	3.4574		



[illegible]









101-55-0.031

[illegible]

TABLE D-2. NORMALIZED PHASE MATRIX FOR TYPE C AEROSOLS, MODEL 800,  $\lambda=0.70\mu$   
 $m=1.55-0.03i$

SCATTERING ANGLE	13	12	13	14	15	12	13	14
0.000	1.56132E+00	1.56132E+00	1.56132E+00	-1.21163E-15	9.91024E-02	7.12402E-02	7.02899E-02	-1.43723E-02
0.001	1.56237E+00	1.56237E+00	1.56237E+00	-7.83197E-05	9.70587E-02	7.03389E-02	7.03389E-02	-1.43723E-02
0.002	1.56342E+00	1.56342E+00	1.56342E+00	-3.62285E-05	9.49034E-02	6.93817E-02	6.93817E-02	-1.43723E-02
0.003	1.56447E+00	1.56447E+00	1.56447E+00	-9.28878E-06	9.27502E-02	6.84245E-02	6.84245E-02	-1.43723E-02
0.004	1.56552E+00	1.56552E+00	1.56552E+00	-1.60934E-05	9.05919E-02	6.74653E-02	6.74653E-02	-1.43723E-02
0.005	1.56657E+00	1.56657E+00	1.56657E+00	-2.38981E-05	8.84836E-02	6.65061E-02	6.65061E-02	-1.43723E-02
0.006	1.56762E+00	1.56762E+00	1.56762E+00	-3.17028E-05	8.63719E-02	6.55469E-02	6.55469E-02	-1.43723E-02
0.007	1.56867E+00	1.56867E+00	1.56867E+00	-3.95075E-05	8.42602E-02	6.45877E-02	6.45877E-02	-1.43723E-02
0.008	1.56972E+00	1.56972E+00	1.56972E+00	-4.73122E-05	8.21485E-02	6.36285E-02	6.36285E-02	-1.43723E-02
0.009	1.57077E+00	1.57077E+00	1.57077E+00	-5.51169E-05	8.00368E-02	6.26693E-02	6.26693E-02	-1.43723E-02
0.010	1.57182E+00	1.57182E+00	1.57182E+00	-6.29216E-05	7.79251E-02	6.17101E-02	6.17101E-02	-1.43723E-02
0.011	1.57287E+00	1.57287E+00	1.57287E+00	-7.07263E-05	7.58134E-02	6.07509E-02	6.07509E-02	-1.43723E-02
0.012	1.57392E+00	1.57392E+00	1.57392E+00	-7.85310E-05	7.37017E-02	5.97917E-02	5.97917E-02	-1.43723E-02
0.013	1.57497E+00	1.57497E+00	1.57497E+00	-8.63357E-05	7.15900E-02	5.88325E-02	5.88325E-02	-1.43723E-02
0.014	1.57602E+00	1.57602E+00	1.57602E+00	-9.41404E-05	6.94783E-02	5.78733E-02	5.78733E-02	-1.43723E-02
0.015	1.57707E+00	1.57707E+00	1.57707E+00	-1.01945E-04	6.73666E-02	5.69141E-02	5.69141E-02	-1.43723E-02
0.016	1.57812E+00	1.57812E+00	1.57812E+00	-1.09790E-04	6.52549E-02	5.59549E-02	5.59549E-02	-1.43723E-02
0.017	1.57917E+00	1.57917E+00	1.57917E+00	-1.17635E-04	6.31432E-02	5.49957E-02	5.49957E-02	-1.43723E-02
0.018	1.58022E+00	1.58022E+00	1.58022E+00	-1.25480E-04	6.10315E-02	5.40365E-02	5.40365E-02	-1.43723E-02
0.019	1.58127E+00	1.58127E+00	1.58127E+00	-1.33325E-04	5.89198E-02	5.30773E-02	5.30773E-02	-1.43723E-02
0.020	1.58232E+00	1.58232E+00	1.58232E+00	-1.41170E-04	5.68081E-02	5.21181E-02	5.21181E-02	-1.43723E-02
0.021	1.58337E+00	1.58337E+00	1.58337E+00	-1.49015E-04	5.46964E-02	5.11589E-02	5.11589E-02	-1.43723E-02
0.022	1.58442E+00	1.58442E+00	1.58442E+00	-1.56860E-04	5.25847E-02	5.01997E-02	5.01997E-02	-1.43723E-02
0.023	1.58547E+00	1.58547E+00	1.58547E+00	-1.64705E-04	5.04730E-02	4.92405E-02	4.92405E-02	-1.43723E-02
0.024	1.58652E+00	1.58652E+00	1.58652E+00	-1.72550E-04	4.83613E-02	4.82813E-02	4.82813E-02	-1.43723E-02
0.025	1.58757E+00	1.58757E+00	1.58757E+00	-1.80395E-04	4.62496E-02	4.73221E-02	4.73221E-02	-1.43723E-02
0.026	1.58862E+00	1.58862E+00	1.58862E+00	-1.88240E-04	4.41379E-02	4.63629E-02	4.63629E-02	-1.43723E-02
0.027	1.58967E+00	1.58967E+00	1.58967E+00	-1.96085E-04	4.20262E-02	4.54037E-02	4.54037E-02	-1.43723E-02
0.028	1.59072E+00	1.59072E+00	1.59072E+00	-2.03930E-04	3.99145E-02	4.44445E-02	4.44445E-02	-1.43723E-02
0.029	1.59177E+00	1.59177E+00	1.59177E+00	-2.11775E-04	3.78028E-02	4.34853E-02	4.34853E-02	-1.43723E-02
0.030	1.59282E+00	1.59282E+00	1.59282E+00	-2.19620E-04	3.56911E-02	4.25261E-02	4.25261E-02	-1.43723E-02
0.031	1.59387E+00	1.59387E+00	1.59387E+00	-2.27465E-04	3.35794E-02	4.15669E-02	4.15669E-02	-1.43723E-02
0.032	1.59492E+00	1.59492E+00	1.59492E+00	-2.35310E-04	3.14677E-02	4.06077E-02	4.06077E-02	-1.43723E-02
0.033	1.59597E+00	1.59597E+00	1.59597E+00	-2.43155E-04	2.93560E-02	3.96485E-02	3.96485E-02	-1.43723E-02
0.034	1.59702E+00	1.59702E+00	1.59702E+00	-2.51000E-04	2.72443E-02	3.86893E-02	3.86893E-02	-1.43723E-02
0.035	1.59807E+00	1.59807E+00	1.59807E+00	-2.58845E-04	2.51326E-02	3.77301E-02	3.77301E-02	-1.43723E-02
0.036	1.59912E+00	1.59912E+00	1.59912E+00	-2.66690E-04	2.30209E-02	3.67709E-02	3.67709E-02	-1.43723E-02
0.037	1.60017E+00	1.60017E+00	1.60017E+00	-2.74535E-04	2.09092E-02	3.58117E-02	3.58117E-02	-1.43723E-02
0.038	1.60122E+00	1.60122E+00	1.60122E+00	-2.82380E-04	1.87975E-02	3.48525E-02	3.48525E-02	-1.43723E-02
0.039	1.60227E+00	1.60227E+00	1.60227E+00	-2.90225E-04	1.66858E-02	3.38933E-02	3.38933E-02	-1.43723E-02
0.040	1.60332E+00	1.60332E+00	1.60332E+00	-2.98070E-04	1.45741E-02	3.29341E-02	3.29341E-02	-1.43723E-02
0.041	1.60437E+00	1.60437E+00	1.60437E+00	-3.05915E-04	1.24624E-02	3.19749E-02	3.19749E-02	-1.43723E-02
0.042	1.60542E+00	1.60542E+00	1.60542E+00	-3.13760E-04	1.03507E-02	3.10157E-02	3.10157E-02	-1.43723E-02
0.043	1.60647E+00	1.60647E+00	1.60647E+00	-3.21605E-04	8.23904E-03	3.00565E-02	3.00565E-02	-1.43723E-02
0.044	1.60752E+00	1.60752E+00	1.60752E+00	-3.29450E-04	6.12651E-03	2.90973E-02	2.90973E-02	-1.43723E-02
0.045	1.60857E+00	1.60857E+00	1.60857E+00	-3.37295E-04	4.01398E-03	2.81381E-02	2.81381E-02	-1.43723E-02
0.046	1.60962E+00	1.60962E+00	1.60962E+00	-3.45140E-04	1.90145E-03	2.71789E-02	2.71789E-02	-1.43723E-02
0.047	1.61067E+00	1.61067E+00	1.61067E+00	-3.52985E-04	-2.20808E-03	2.62197E-02	2.62197E-02	-1.43723E-02
0.048	1.61172E+00	1.61172E+00	1.61172E+00	-3.60830E-04	-4.31971E-03	2.52605E-02	2.52605E-02	-1.43723E-02
0.049	1.61277E+00	1.61277E+00	1.61277E+00	-3.68675E-04	-6.43134E-03	2.43013E-02	2.43013E-02	-1.43723E-02
0.050	1.61382E+00	1.61382E+00	1.61382E+00	-3.76520E-04	-8.54297E-03	2.33421E-02	2.33421E-02	-1.43723E-02
0.051	1.61487E+00	1.61487E+00	1.61487E+00	-3.84365E-04	-1.06590E-02	2.23829E-02	2.23829E-02	-1.43723E-02
0.052	1.61592E+00	1.61592E+00	1.61592E+00	-3.92210E-04	-1.27753E-02	2.14237E-02	2.14237E-02	-1.43723E-02
0.053	1.61697E+00	1.61697E+00	1.61697E+00	-4.00055E-04	-1.48916E-02	2.04645E-02	2.04645E-02	-1.43723E-02
0.054	1.61802E+00	1.61802E+00	1.61802E+00	-4.07900E-04	-1.69079E-02	1.95053E-02	1.95053E-02	-1.43723E-02
0.055	1.61907E+00	1.61907E+00	1.61907E+00	-4.15745E-04	-1.89242E-02	1.85461E-02	1.85461E-02	-1.43723E-02
0.056	1.62012E+00	1.62012E+00	1.62012E+00	-4.23590E-04	-2.09405E-02	1.75869E-02	1.75869E-02	-1.43723E-02
0.057	1.62117E+00	1.62117E+00	1.62117E+00	-4.31435E-04	-2.29568E-02	1.66277E-02	1.66277E-02	-1.43723E-02
0.058	1.62222E+00	1.62222E+00	1.62222E+00	-4.39280E-04	-2.49731E-02	1.56685E-02	1.56685E-02	-1.43723E-02
0.059	1.62327E+00	1.62327E+00	1.62327E+00	-4.47125E-04	-2.69894E-02	1.47093E-02	1.47093E-02	-1.43723E-02
0.060	1.62432E+00	1.62432E+00	1.62432E+00	-4.54970E-04	-2.89057E-02	1.37501E-02	1.37501E-02	-1.43723E-02
0.061	1.62537E+00	1.62537E+00	1.62537E+00	-4.62815E-04	-3.08220E-02	1.27909E-02	1.27909E-02	-1.43723E-02
0.062	1.62642E+00	1.62642E+00	1.62642E+00	-4.70660E-04	-3.27383E-02	1.18317E-02	1.18317E-02	-1.43723E-02
0.063	1.62747E+00	1.62747E+00	1.62747E+00	-4.78505E-04	-3.46546E-02	1.08725E-02	1.08725E-02	-1.43723E-02
0.064	1.62852E+00	1.62852E+00	1.62852E+00	-4.86350E-04	-3.65709E-02	9.9133E-03	9.9133E-03	-1.43723E-02
0.065	1.62957E+00	1.62957E+00	1.62957E+00	-4.94195E-04	-3.84872E-02	8.9543E-03	8.9543E-03	-1.43723E-02
0.066	1.63062E+00	1.63062E+00	1.63062E+00	-5.02040E-04	-4.04035E-02	8.0000E-03	8.0000E-03	-1.43723E-02
0.067	1.63167E+00	1.63167E+00	1.63167E+00	-5.09885E-04	-4.23198E-02	7.0457E-03	7.0457E-03	-1.43723E-02
0.068	1.63272E+00	1.63272E+00	1.63272E+00	-5.17730E-04	-4.42361E-02	6.0914E-03	6.0914E-03	-1.43723E-02
0.069	1.63377E+00	1.63377E+00	1.63377E+00	-5.25575E-04	-4.61524E-02	5.1371E-03	5.1371E-03	-1.43723E-02
0.070	1.63482E+00	1.63482E+00	1.63482E+00	-5.33420E-04	-4.80687E-02	4.1828E-03	4.1828E-03	-1.43723E-02
0.071	1.63587E+00	1.63587E+00	1.63587E+00	-5.41265E-04	-4.99850E-02	3.2285E-03	3.2285E-03	-1.43723E-02
0.072	1.63692E+00	1.63692E+00	1.63692E+00	-5.49110E-04	-5.19013E-02	2.2742E-03	2.2742E-03	-1.43723E-02
0.073	1.63797E+00	1.63797E+00	1.63797E+00	-5.56955E-04	-5.38176E-02	1.3199E-03	1.3199E-03	-1.43723E-02
0.074	1.63902E+00	1.63902E+00	1.63902E+00	-5.64800E-04	-5.57339E-02	3.65E-04	3.65E-04	-1.43723E-02
0.075	1.64007E+00	1.64007E+00	1.64007E+00	-5.72645E-04	-5.76502E-02	0.00E+00	0.00E+00	-1.43723E-02

TABLE 20C. NORMALIZED PHASE MATRIX FOR TYPE C AEROSOLS, MODEL 8004  $\lambda = 0.60\mu$

[illegible]

**APPENDIX E.**

**Normalized Phase Matrices for Stratospheric Aerosols**

TABLE E3. NORMALIZED PHASE MATRIX FOR STRATOSPHERIC AEROSOLS, MODEL 20,  $\lambda=0.43\mu$

[illegible]



TABLE E2. NORMALIZED PHASE MATRIX FOR STRATOSPHERIC AEROSOLS, MODEL 20,  $\lambda=0.50\mu$ 

SCATTERING ANGLE	11	12	13	I <sub>0</sub>	14
0.0	1.61158E+00	1.61159E+00	1.61159E+00	-1.21310E-15	96.00
1.0	8.46654E-04	8.46654E-04	8.46654E-04	1.74749E-02	100.00
2.00	1.53167E+00	1.53167E+00	1.53167E+00	1.34644E-02	100.00
3.00	1.61158E+00	1.61158E+00	1.61158E+00	5.81699E-03	100.00
4.00	1.53167E+00	1.53167E+00	1.53167E+00	1.34644E-02	100.00
5.00	1.61158E+00	1.61158E+00	1.61158E+00	-1.21310E-15	100.00
6.00	1.53167E+00	1.53167E+00	1.53167E+00	1.34644E-02	100.00
7.00	1.61158E+00	1.61158E+00	1.61158E+00	5.81699E-03	100.00
8.00	1.53167E+00	1.53167E+00	1.53167E+00	1.34644E-02	100.00
9.00	1.61158E+00	1.61158E+00	1.61158E+00	-1.21310E-15	100.00
10.00	1.53167E+00	1.53167E+00	1.53167E+00	1.34644E-02	100.00
11.00	1.61158E+00	1.61158E+00	1.61158E+00	5.81699E-03	100.00
12.00	1.53167E+00	1.53167E+00	1.53167E+00	1.34644E-02	100.00
13.00	1.61158E+00	1.61158E+00	1.61158E+00	-1.21310E-15	100.00
14.00	1.53167E+00	1.53167E+00	1.53167E+00	1.34644E-02	100.00
15.00	1.61158E+00	1.61158E+00	1.61158E+00	5.81699E-03	100.00
16.00	1.53167E+00	1.53167E+00	1.53167E+00	1.34644E-02	100.00
17.00	1.61158E+00	1.61158E+00	1.61158E+00	-1.21310E-15	100.00
18.00	1.53167E+00	1.53167E+00	1.53167E+00	1.34644E-02	100.00
19.00	1.61158E+00	1.61158E+00	1.61158E+00	5.81699E-03	100.00
20.00	1.53167E+00	1.53167E+00	1.53167E+00	1.34644E-02	100.00
21.00	1.61158E+00	1.61158E+00	1.61158E+00	-1.21310E-15	100.00
22.00	1.53167E+00	1.53167E+00	1.53167E+00	1.34644E-02	100.00
23.00	1.61158E+00	1.61158E+00	1.61158E+00	5.81699E-03	100.00
24.00	1.53167E+00	1.53167E+00	1.53167E+00	1.34644E-02	100.00
25.00	1.61158E+00	1.61158E+00	1.61158E+00	-1.21310E-15	100.00
26.00	1.53167E+00	1.53167E+00	1.53167E+00	1.34644E-02	100.00
27.00	1.61158E+00	1.61158E+00	1.61158E+00	5.81699E-03	100.00
28.00	1.53167E+00	1.53167E+00	1.53167E+00	1.34644E-02	100.00
29.00	1.61158E+00	1.61158E+00	1.61158E+00	-1.21310E-15	100.00
30.00	1.53167E+00	1.53167E+00	1.53167E+00	1.34644E-02	100.00
31.00	1.61158E+00	1.61158E+00	1.61158E+00	5.81699E-03	100.00
32.00	1.53167E+00	1.53167E+00	1.53167E+00	1.34644E-02	100.00
33.00	1.61158E+00	1.61158E+00	1.61158E+00	-1.21310E-15	100.00
34.00	1.53167E+00	1.53167E+00	1.53167E+00	1.34644E-02	100.00
35.00	1.61158E+00	1.61158E+00	1.61158E+00	5.81699E-03	100.00
36.00	1.53167E+00	1.53167E+00	1.53167E+00	1.34644E-02	100.00
37.00	1.61158E+00	1.61158E+00	1.61158E+00	-1.21310E-15	100.00
38.00	1.53167E+00	1.53167E+00	1.53167E+00	1.34644E-02	100.00
39.00	1.61158E+00	1.61158E+00	1.61158E+00	5.81699E-03	100.00
40.00	1.53167E+00	1.53167E+00	1.53167E+00	1.34644E-02	100.00
41.00	1.61158E+00	1.61158E+00	1.61158E+00	-1.21310E-15	100.00
42.00	1.53167E+00	1.53167E+00	1.53167E+00	1.34644E-02	100.00
43.00	1.61158E+00	1.61158E+00	1.61158E+00	5.81699E-03	100.00
44.00	1.53167E+00	1.53167E+00	1.53167E+00	1.34644E-02	

TABLE E3. NORMALIZED PHASE MATRIX FOR STRATOSPHERIC AEROSOLS, MODEL 20,  $\lambda=0.55\mu$

[illegible]



TABLE C5. NORMALIZED PHASE MATRIX FOR STRATOSPHERIC AEROSOLS, MODEL 20,  $\lambda=0.65\mu$ 

SCATTERING ANGLE	13	12	13	14	15	12	13	16
90.00	0.89760E-01	0.899760E-01	0.898760E-01	-7.332730E-16	1.368095E-02	1.636021E-02	1.060111E-02	1.292471E-03
1.00	0.89860E-01	0.89976E-01	0.89876E-01	-5.667390E-04	1.594046E-02	1.594046E-02	9.00660E-03	1.594046E-03
2.00	0.89812E-01	0.89732E-01	0.89532E-01	-5.851976E-04	1.528446E-02	1.323318E-02	9.27476E-03	1.718467E-03
3.00	0.89660E-01	0.89660E-01	0.89660E-01	-6.84660E-04	1.509090E-02	1.277990E-02	9.799990E-03	1.900990E-03
4.00	0.89432E-01	0.89432E-01	0.89432E-01	-1.223318E-03	1.484491E-02	1.239591E-02	9.37476E-03	2.098681E-03
5.00	0.89118E-01	0.89118E-01	0.89118E-01	-1.75118E-03	1.455555E-02	1.200000E-02	8.90000E-03	2.30000E-03
6.00	0.887375E-01	0.887375E-01	0.887375E-01	-2.35118E-03	1.423318E-02	1.164491E-02	8.37476E-03	2.673776E-03
7.00	0.88300E-01	0.88300E-01	0.88300E-01	-3.00000E-03	1.387778E-02	1.123318E-02	7.80000E-03	3.123318E-03
8.00	0.87812E-01	0.87812E-01	0.87812E-01	-3.75000E-03	1.348889E-02	1.077778E-02	7.18889E-03	3.677778E-03
9.00	0.87280E-01	0.87280E-01	0.87280E-01	-4.60000E-03	1.306667E-02	1.027778E-02	6.53333E-03	4.33333E-03
10.00	0.86704E-01	0.86704E-01	0.86704E-01	-5.55556E-03	1.261111E-02	9.72222E-03	5.83333E-03	5.11111E-03
11.00	0.86086E-01	0.86086E-01	0.86086E-01	-6.61111E-03	1.212222E-02	9.11111E-03	5.07778E-03	5.92222E-03
12.00	0.85427E-01	0.85427E-01	0.85427E-01	-7.77778E-03	1.160000E-02	8.44444E-03	4.27778E-03	6.77778E-03
13.00	0.84728E-01	0.84728E-01	0.84728E-01	-9.05556E-03	1.105556E-02	7.72222E-03	3.43333E-03	7.66667E-03
14.00	0.83989E-01	0.83989E-01	0.83989E-01	-1.04444E-02	1.048889E-02	6.95556E-03	2.55556E-03	8.55556E-03
15.00	0.83210E-01	0.83210E-01	0.83210E-01	-1.19444E-02	9.88889E-03	6.14444E-03	1.64444E-03	9.44444E-03
16.00	0.82392E-01	0.82392E-01	0.82392E-01	-1.35556E-02	9.24444E-03	5.29999E-03	7.00000E-04	1.03333E-02
17.00	0.81535E-01	0.81535E-01	0.81535E-01	-1.52778E-02	8.55556E-03	4.42222E-03	2.00000E-04	1.12222E-02
18.00	0.80638E-01	0.80638E-01	0.80638E-01	-1.71111E-02	7.82222E-03	3.51111E-03	1.00000E-04	1.21111E-02
19.00	0.79699E-01	0.79699E-01	0.79699E-01	-1.90556E-02	7.05556E-03	2.56667E-03	0.00000E-04	1.30000E-02
20.00	0.78718E-01	0.78718E-01	0.78718E-01	-2.11111E-02	6.25556E-03	1.59999E-03	0.00000E-04	1.38889E-02
21.00	0.77694E-01	0.77694E-01	0.77694E-01	-2.32778E-02	5.42222E-03	6.66667E-04	0.00000E-04	1.47778E-02
22.00	0.76627E-01	0.76627E-01	0.76627E-01	-2.55556E-02	4.55556E-03	0.00000E-04	0.00000E-04	1.56667E-02
23.00	0.75518E-01	0.75518E-01	0.75518E-01	-2.79999E-02	3.64444E-03	0.00000E-04	0.00000E-04	1.65556E-02
24.00	0.74366E-01	0.74366E-01	0.74366E-01	-3.05556E-02	2.70000E-03	0.00000E-04	0.00000E-04	1.74444E-02
25.00	0.73171E-01	0.73171E-01	0.73171E-01	-3.32778E-02	1.72222E-03	0.00000E-04	0.00000E-04	1.83333E-02
26.00	0.71933E-01	0.71933E-01	0.71933E-01	-3.61111E-02	7.22222E-04	0.00000E-04	0.00000E-04	1.92222E-02
27.00	0.70653E-01	0.70653E-01	0.70653E-01	-3.90556E-02	0.00000E-04	0.00000E-04	0	

**4-3,50-0,00!**

SCATTERING ANGLE	11	12	13	14	15	16
0.00	1.503085E-01	1.503085E-01	1.503085E-01	7.535955E-10	1.135917E-01	5.555961E-03
2.00	1.504085E-01	1.504085E-01	1.504085E-01	7.535955E-10	1.135917E-01	5.555961E-03
4.00	1.505085E-01	1.505085E-01	1.505085E-01	7.535955E-10	1.135917E-01	5.555961E-03
6.00	1.506085E-01	1.506085E-01	1.506085E-01	7.535955E-10	1.135917E-01	5.555961E-03
8.00	1.507085E-01	1.507085E-01	1.507085E-01	7.535955E-10	1.135917E-01	5.555961E-03
10.00	1.508085E-01	1.508085E-01	1.508085E-01	7.535955E-10	1.135917E-01	5.555961E-03
12.00	1.509085E-01	1.509085E-01	1.509085E-01	7.535955E-10	1.135917E-01	5.555961E-03
14.00	1.510085E-01	1.510085E-01	1.510085E-01	7.535955E-10	1.135917E-01	5.555961E-03
16.00	1.511085E-01	1.511085E-01	1.511085E-01	7.535955E-10	1.135917E-01	5.555961E-03
18.00	1.512085E-01	1.512085E-01	1.512085E-01	7.535955E-10	1.135917E-01	5.555961E-03
20.00	1.513085E-01	1.513085E-01	1.513085E-01	7.535955E-10	1.135917E-01	5.555961E-03
22.00	1.514085E-01	1.514085E-01	1.514085E-01	7.535955E-10	1.135917E-01	5.555961E-03
24.00	1.515085E-01	1.515085E-01	1.515085E-01	7.535955E-10	1.135917E-01	5.555961E-03
26.00	1.516085E-01	1.516085E-01	1.516085E-01	7.535955E-10	1.135917E-01	5.555961E-03
28.00	1.517085E-01	1.517085E-01	1.517085E-01	7.535955E-10	1.135917E-01	5.555961E-03
30.00	1.518085E-01	1.518085E-01	1.518085E-01	7.535955E-10	1.135917E-01	5.555961E-03
32.00	1.519085E-01	1.519085E-01	1.519085E-01	7.535955E-10	1.135917E-01	5.555961E-03
34.00	1.520085E-01	1.520085E-01	1.520085E-01	7.535955E-10	1.135917E-01	5.555961E-03
36.00	1.521085E-01	1.521085E-01	1.521085E-01	7.535955E-10	1.135917E-01	5.555961E-03
38.00	1.522085E-01	1.522085E-01	1.522085E-01	7.535955E-10	1.135917E-01	5.555961E-03
40.00	1.523085E-01	1.523085E-01	1.523085E-01	7.535955E-10	1.135917E-01	5.555961E-03
42.00	1.524085E-01	1.524085E-01	1.524085E-01	7.535955E-10	1.135917E-01	5.555961E-03
44.00	1.525085E-01	1.525085E-01	1.525085E-01	7.535955E-10	1.135917E-01	5.555961E-03
46.00	1.526085E-01	1.526085E-01	1.526085E-01	7.535955E-10	1.135917E-01	5.555961E-03
48.00	1.527085E-01	1.527085E-01	1.527085E-01	7.535955E-10	1.135917E-01	5.555961E-03
50.00	1.528085E-01	1.528085E-01	1.528085E-01	7.535955E-10	1.135917E-01	5.555961E-03
52.00	1.529085E-01	1.529085E-01	1.529085E-01	7.535955E-10	1.135917E-01	5.555961E-03
54.00	1.530085E-01	1.530085E-01	1.530085E-01	7.535955E-10	1.135917E-01	5.555961E-03
56.00	1.531085E-01	1.531085E-01	1.531085E-01	7.535955E-10	1.135917E-01	5.555961E-03
58.00	1.532085E-01	1.532085E-01	1.532085E-01	7.535955E-10	1.135917E-01	5.555961E-03
60.00	1.533085E-01	1.533085E-01	1.533085E-01	7.535955E-10	1.135917E-01	5.555961E-03
62.00	1.534085E-01	1.534085E-01	1.534085E-01	7.535955E-10	1.135917E-01	5.555961E-03
64.00	1.535085E-01	1.535085E-01	1.535085E-01	7.535955E-10	1.135917E-01	5.555961E-03
66.00	1.536085E-01	1.536085E-01	1.536085E-01	7.535955E-10	1.135917E-01	5.555961E-03
68.00	1.537085E-01	1.537085E-01	1.537085E-01	7.535955E-10	1.135917E-01	5.555961E-03
70.00	1.538085E-01	1.538085E-01	1.538085E-01	7.535955E-10	1.135917E-01	5.555961E-03
72.00	1.539085E-01	1.539085E-01	1.539085E-01	7.535955E-10	1.135917E-01	5.555961E-03
74.00	1.540085E-01	1.540085E-01	1.540085E-01	7.535955E-10	1.135917E-01	5.555961E-03
76.00	1.541085E-01	1.541085E-01	1.541085E-01	7.535955E-10	1.135917E-01	5.555961E-03
78.00	1.542085E-01	1.542085E-01	1.542085E-01	7.535955E-10	1.135917E-01	5.555961E-03
80.00	1.543085E-01	1.543085E-01	1.543085E-01	7.535955E-10	1.135917E-01	5.555961E-03
82.00	1.544085E-01	1.544085E-01	1.544085E-01	7.535955E-10	1.135917E-01	5.555961E-03
84.00	1.545085E-01	1.545085E-01	1.545085E-01	7.535955E-10	1.135917E-01	5.555961E-03
86.00	1.546085E-01	1.546085E-01	1.546085E-01	7.535955E-10	1.135917E-01	5.555961E-03
88.00	1.547085E-01	1.547085E-01	1.547085E-01	7.535955E-10	1.135917E-01	5.555961E-03
90.00	1.548085E-01	1.548085E-01	1.548085E-01	7.535955E-10	1.135917E-01	5.555961E-03
92.00	1.549085E-01	1.549085E-01	1.549085E-01	7.535955E-10	1.135917E-01	5.555961E-03
94.00	1.550085E-01	1.550085E-01	1.550085E-01	7.535955E-10	1.135917E-01	5.555961E-03
96.00	1.551085E-01	1.551085E-01	1.551085E-01	7.535955E-10	1.135917E-01	5.555961E-03
98.00	1.552085E-01	1.552085E-01	1.552085E-01	7.535955E-10	1.135917E-01	5.555961E-03
100.00	1.553085E-01	1.553085E-01	1.553085E-01	7.535955E-10	1.135917E-01	5.555961E-03



TABLE 68. NORMALIZED PHASE MATRIX FOR AIRKEN PARTICLES, MODEL 30,  $\lambda=0.55$ 

M=1.50-0.001

SCATTERING ANGLE	13	12	13	14	SCATTERING ANGLE	13	12	13	14
0.0	1.40347E-01	1.40347E-01	1.40347E-01	1.05895E-17	98.0	1.16610E-01	8.72611E-04	-1.00753E-02	0.95834E-05
1.0	1.40347E-01	1.40347E-01	1.40347E-01	2.46623E-09	99.0	1.15014E-01	1.23441E-01	-1.40024E-02	1.71185E-05
2.0	1.40347E-01	1.40347E-01	1.40347E-01	1.14615E-07	100.0	1.15236E-01	2.00044E-03	-1.79539E-02	5.76311E-05
3.0	1.40347E-01	1.40347E-01	1.40347E-01	6.27583E-07	101.0	1.14883E-01	7.15147E-03	-2.48049E-02	6.64724E-05
4.0	1.40347E-01	1.40347E-01	1.40347E-01	7.74881E-07	102.0	1.13941E-01	5.74683E-03	-2.55021E-02	8.48659E-05
5.0	1.40347E-01	1.40347E-01	1.40347E-01	7.74881E-07	103.0	1.13284E-01	7.23236E-03	-2.62443E-02	9.34934E-05
6.0	1.40347E-01	1.40347E-01	1.40347E-01	1.29044E-06	104.0	1.12023E-01	9.82374E-03	-3.29189E-02	6.13478E-05
7.0	1.40347E-01	1.40347E-01	1.40347E-01	1.39230E-06	105.0	1.10992E-01	1.48794E-02	-3.67498E-02	7.33237E-05
8.0	1.40347E-01	1.40347E-01	1.40347E-01	1.62217E-06	106.0	1.11170E-01	1.43281E-02	-4.39941E-02	7.71351E-05
9.0	1.40347E-01	1.40347E-01	1.40347E-01	2.82121E-06	107.0	1.10644E-01	1.49681E-02	-4.33321E-02	7.47999E-05
10.0	1.40347E-01	1.40347E-01	1.40347E-01	2.82121E-06	108.0	1.10162E-01	1.37449E-02	-4.66306E-02	7.23211E-05
11.0	1.40347E-01	1.40347E-01	1.40347E-01	2.82121E-06	109.0	1.10005E-01	2.57978E-02	-5.29778E-02	6.78018E-05
12.0	1.40347E-01	1.40347E-01	1.40347E-01	4.66594E-06	110.0	1.09005E-01	3.94061E-02	-5.66444E-02	6.18484E-05
13.0	1.40347E-01	1.40347E-01	1.40347E-01	4.66594E-06	111.0	1.07903E-01	3.22091E-02	-5.99523E-02	6.12747E-05
14.0	1.40347E-01	1.40347E-01	1.40347E-01	5.50210E-06	112.0	1.07303E-01	3.45644E-02	-6.17979E-02	6.12747E-05
15.0	1.40347E-01	1.40347E-01	1.40347E-01	6.59498E-06	113.0	1.06627E-01	3.59889E-02	-6.45471E-02	5.52503E-05
16.0	1.40347E-01	1.40347E-01	1.40347E-01	7.14038E-06	114.0	1.06005E-01	4.30678E-02	-6.72478E-02	4.30678E-05
17.0	1.40347E-01	1.40347E-01	1.40347E-01	8.48659E-06	115.0	1.05435E-01	4.30678E-02	-7.22044E-02	4.30678E-05
18.0	1.40347E-01	1.40347E-01	1.40347E-01	8.48659E-06	116.0	1.04937E-01	5.23591E-02	-7.55722E-02	4.30678E-05
19.0	1.40347E-01	1.40347E-01	1.40347E-01	8.48659E-06	117.0	1.04431E-01	5.98939E-02	-7.69871E-02	3.62781E-05
20.0	1.40347E-01	1.40347E-01	1.40347E-01	1.55218E-05	118.0	1.04131E-01	6.55135E-02	-8.10131E-02	3.62781E-05
21.0	1.40347E-01	1.40347E-01	1.40347E-01	2.05747E-05	119.0	1.03324E-01	6.55135E-02	-8.29631E-02	3.05330E-05
22.0	1.40347E-01	1.40347E-01	1.40347E-01	2.05747E-05	120.0	1.02665E-01	7.23137E-02	-8.65208E-02	2.47821E-05
23.0	1.40347E-01	1.40347E-01	1.40347E-01	2.62832E-05	121.0	1.02197E-01	7.59239E-02	-8.81572E-02	2.46876E-05
24.0	1.40347E-01	1.40347E-01	1.40347E-01	3.22992E-05	122.0	1.02197E-01	7.73106E-02	-8.69279E-02	4.07250E-05
25.0	1.40347E-01	1.40347E-01	1.40347E-01	3.54997E-05	123.0	1.02409E-01	7.48616E-02	-9.06240E-02	1.81644E-05
26.0	1.40347E-01	1.40347E-01	1.40347E-01	3.54997E-05	124.0	1.01907E-01	8.01951E-02	-9.01894E-02	1.69303E-05
27.0	1.40347E-01	1.40347E-01	1.40347E-01	4.47275E-05	125.0	1.01384E-01	8.28614E-02	-9.17708E-02	1.57316E-05
28.0	1.40347E-01	1.40347E-01	1.40347E-01	4.47275E-05	126.0	1.01112E-01	8.41584E-02	-9.24165E-02	1.45734E-05
29.0	1.40347E-01	1.40347E-01	1.40347E-01	5.39993E-05	127.0	1.011389E-01	8.53591E-02	-9.30349E-02	1.34444E-05
30.0	1.40347E-01	1.40347E-01	1.40347E-01	5.39993E-05	128.0	1.012234E-01	8.66815E-02	-9.36274E-02	1.23111E-05
31.0	1.40347E-01	1.40347E-01	1.40347E-01	6.59498E-05	129.0	1.011597E-01	8.77073E-02	-9.41936E-02	1.13010E-05
32.0	1.40347E-01	1.40347E-01	1.40347E-01	6.59498E-05	130.0	1.010827E-01	8.88972E-02	-9.47334E-02	1.02929E-05
33.0	1.40347E-01	1.40347E-01	1.40347E-01	7.45598E-05	131.0	1.00950E-01	8.98601E-02	-9.52472E-02	9.32313E-06
34.0	1.40347E-01	1.40347E-01	1.40347E-01	7.45598E-05	132.0	1.00844E-01	9.04484E-02	-9.57444E-02	8.29262E-06
35.0	1.40347E-01	1.40347E-01	1.40347E-01	7.45598E-05	133.0	1.00762E-01	9.18577E-02	-9.61956E-02	7.51571E-06
36.0	1.40347E-01	1.40347E-01	1.40347E-01	7.45598E-05	134.0	1.00695E-01	9.30835E-02	-9.66828E-02	6.87700E-06
37.0	1.40347E-01	1.40347E-01	1.40347E-01	7.45598E-05	135.0	1.00644E-01	9.41951E-02	-9.71331E-02	5.87700E-06
38.0	1.40347E-01	1.40347E-01	1.40347E-01	7.45598E-05	136.0	1.00595E-01	9.50835E-02	-9.75835E-02	5.44444E-06
39.0	1.40347E-01	1.40347E-01	1.40347E-01	7.45598E-05	137.0	1.00544E-01	9.58678E-02	-9.79779E-02	4.77777E-06
40.0	1.40347E-01	1.40347E-01	1.40347E-01	7.45598E-05	138.0	1.00493E-01	9.66815E-02	-9.83271E-02	4.30678E-06
41.0	1.40347E-01	1.40347E-01	1.40347E-01	7.45598E-05	139.0	1.00441E-01	9.74306E-02	-9.86324E-02	3.84444E-06
42.0	1.40347E-01	1.40347E-01	1.40347E-01	7.45598E-05	140.0	1.00389E-01	9.81331E-02	-9.88936E-02	3.40000E-06
43.0	1.40347E-01	1.40347E-01	1.40347E-01	7.45598E-05	141.0	1.00337E-01	9.87813E-02	-9.91131E-02	2.96222E-06
44.0	1.40347E-01	1.40347E-01	1.40347E-01	7.45598E-05	142.0	1.00284E-01	9.93813E-02	-9.92975E-02	2.54444E-06
45.0	1.40347E-01	1.40347E-01	1.40347E-01	7.45598E-05	143.0	1.00231E-01	9.99344E-02	-9.94562E-02	2.15555E-06
46.0	1.40347E-01	1.40347E-01	1.40347E-01	7.45598E-05	144.0	1.00178E-01	1.00000E-01	-9.95835E-02	1.79999E-06
47.0	1.40347E-01	1.40347E-01	1.40347E-01	7.45598E-05	145.0	1.00125E-01	1.00000E-01	-9.96835E-02	1.48888E-06
48.0	1.40347E-01	1.40347E-01	1.40347E-01	7.45598E-05	146.0	1.00072E-01	1.00000E-01	-9.97615E-02	1.20000E-06
49.0	1.40347E-01	1.40347E-01	1.40347E-01	7.45598E-05	147.0	1.00019E-01	1.00000E-01	-9.98222E-02	9.99999E-07
50.0	1.40347E-01	1.40347E-01	1.40347E-01	7.45598E-05	148.0	1.00000E-01	1.00000E-01	-1.00000E-01	1.00000E-06
51.0	1.40347E-01	1.40347E-01	1.40347E-01	7.45598E-05	149.0	1.00000E-01	1.00000E-01	-1.00000E-01	1.00000E-06
52.0	1.40347E-01	1.40347E-01	1.40347E-01	7.45598E-05	150.0	1.00000E-01	1.00000E-01	-1.00000E-01	1.00000E-06







**APPENDIX F.**

**Normalized Phase Matrices for Fog Particles**

TABLE F3. NORMALIZED PHASE MATRIX FOR FOG, MODEL 3,  $\lambda=0.40\mu$ [illegible]

[illegible]

TABLE F3. NORMALIZED PHASE MATRIX FOR FOG, MODEL 1,  $\lambda=0.80\mu$

SCATTERING ANGLE	11	12	13	14
0.00	7.023005E-02	7.13085E-02	7.023005E-02	-5.351171E-03
0.20	6.527122E-02	6.527122E-02	6.527122E-02	-0.472908E-01
0.40	5.927303E-02	5.927303E-02	5.927303E-02	-0.472908E-01
0.60	5.327484E-02	5.327484E-02	5.327484E-02	-0.472908E-01
0.80	4.727665E-02	4.727665E-02	4.727665E-02	-0.472908E-01
1.00	4.127846E-02	4.127846E-02	4.127846E-02	-0.472908E-01
1.20	3.528027E-02	3.528027E-02	3.528027E-02	-0.472908E-01
1.40	2.928208E-02	2.928208E-02	2.928208E-02	-0.472908E-01
1.60	2.328389E-02	2.328389E-02	2.328389E-02	-0.472908E-01
1.80	1.728570E-02	1.728570E-02	1.728570E-02	-0.472908E-01
2.00	1.128751E-02	1.128751E-02	1.128751E-02	-0.472908E-01
2.20	5.287932E-03	5.287932E-03	5.287932E-03	-0.472908E-01
2.40	4.688113E-03	4.688113E-03	4.688113E-03	-0.472908E-01
2.60	4.088294E-03	4.088294E-03	4.088294E-03	-0.472908E-01
2.80	3.488475E-03	3.488475E-03	3.488475E-03	-0.472908E-01
3.00	2.888656E-03	2.888656E-03	2.888656E-03	-0.472908E-01
3.20	2.288837E-03	2.288837E-03	2.288837E-03	-0.472908E-01
3.40	1.689018E-03	1.689018E-03	1.689018E-03	-0.472908E-01
3.60	1.089199E-03	1.089199E-03	1.089199E-03	-0.472908E-01
3.80	4.291380E-04	4.291380E-04	4.291380E-04	-0.472908E-01
4.00	3.691561E-04	3.691561E-04	3.691561E-04	-0.472908E-01
4.20	3.091742E-04	3.091742E-04	3.091742E-04	-0.472908E-01
4.40	2.491923E-04	2.491923E-04	2.491923E-04	-0.472908E-01
4.60	1.892104E-04	1.892104E-04	1.892104E-04	-0.472908E-01
4.80	1.292285E-04	1.292285E-04	1.292285E-04	-0.472908E-01
5.00	6.925065E-05	6.925065E-05	6.925065E-05	-0.472908E-01
5.20	6.325246E-05	6.325246E-05	6.325246E-05	-0.472908E-01
5.40	5.725427E-05	5.725427E-05	5.725427E-05	-0.472908E-01
5.60	5.125608E-05	5.125608E-05	5.125608E-05	-0.472908E-01
5.80	4.525789E-05	4.525789E-05	4.525789E-05	-0.472908E-01
6.00	3.925970E-05	3.925970E-05	3.925970E-05	-0.472908E-01
6.20	3.326151E-05	3.326151E-05	3.326151E-05	-0.472908E-01
6.40	2.726332E-05	2.726332E-05	2.726332E-05	-0.472908E-01
6.60	2.126513E-05	2.126513E-05	2.126513E-05	-0.472908E-01
6.80	1.526694E-05	1.526694E-05	1.526694E-05	-0.472908E-01
7.00	9.269775E-06	9.269775E-06	9.269775E-06	-0.472908E-01
7.20	8.669956E-06	8.669956E-06	8.669956E-06	-0.472908E-01
7.40	8.070137E-06	8.070137E-06	8.070137E-06	-0.472908E-01
7.60	7.470318E-06	7.470318E-06	7.470318E-06	-0.472908E-01
7.80	6.870499E-06	6.870499E-06	6.870499E-06	-0.472908E-01
8.00	6.270680E-06	6.270680E-06	6.270680E-06	-0.472908E-01
8.20	5.670861E-06	5.670861E-06	5.670861E-06	-0.472908E-01
8.40	5.071042E-06	5.071042E-06	5.071042E-06	-0.472908E-01
8.60	4.471223E-06	4.471223E-06	4.471223E-06	-0.472908E-01
8.80	3.871404E-06	3.871404E-06	3.871404E-06	-0.472908E-01
9.00	3.271585E-06	3.271585E-06	3.271585E-06	-0.472908E-01
9.20	2.671766E-06	2.671766E-06	2.671766E-06	-0.472908E-01
9.40	2.071947E-06	2.071947E-06	2.071947E-06	-0.472908E-01
9.60	1.472128E-06	1.472128E-06	1.472128E-06	-0.472908E-01
9.80	8.723409E-07	8.723409E-07	8.723409E-07	-0.472908E-01
10.00	7.123590E-07	7.123590E-07	7.123590E-07	-0.472908E-01
10.20	6.523771E-07	6.523771E-07	6.523771E-07	-0.472908E-01
10.40	5.923952E-07	5.923952E-07	5.923952E-07	-0.472908E-01
10.60	5.324133E-07	5.324133E-07	5.324133E-07	-0.472908E-01
10.80	4.724314E-07	4.724314E-07	4.724314E-07	-0.472908E-01
11.00	4.124495E-07	4.124495E-07	4.124495E-07	-0.472908E-01
11.20	3.524676E-07	3.524676E-07	3.524676E-07	-0.472908E-01
11.40	2.924857E-07	2.924857E-07	2.924857E-07	-0.472908E-01
11.60	2.325038E-07	2.325038E-07	2.325038E-07	-0.472908E-01
11.80	1.725219E-07	1.725219E-07	1.725219E-07	-0.472908E-01
12.00	1.125400E-07	1.125400E-07	1.125400E-07	-0.472908E-01
12.20	5.253581E-08	5.253581E-08	5.253581E-08	-0.472908E-01
12.40	4.653762E-08	4.653762E-08	4.653762E-08	-0.472908E-01
12.60	4.053943E-08	4.053943E-08	4.053943E-08	-0.472908E-01
12.80	3.454124E-08	3.454124E-08	3.454124E-08	-0.472908E-01
13.00	2.854305E-08	2.854305E-08	2.854305E-08	-0.472908E-01
13.20	2.254486E-08	2.254486E-08	2.254486E-08	-0.472908E-01
13.40	1.654667E-08	1.654667E-08	1.654667E-08	-0.472908E-01
13.60	1.054848E-08	1.054848E-08	1.054848E-08	-0.472908E-01
13.80	4.955029E-09	4.955029E-09	4.955029E-09	-0.472908E-01
14.00	4.355210E-09	4.355210E-09	4.355210E-09	-0.472908E-01
14.20	3.755391E-09	3.755391E-09	3.755391E-09	-0.472908E-01
14.40	3.155572E-09	3.155572E-09	3.155572E-09	-0.472908E-01
14.60	2.555753E-09	2.555753E-09	2.555753E-09	-0.472908E-01
14.80	1.955934E-09	1.955934E-09	1.955934E-09	-0.472908E-01
15.00	1.356115E-09	1.356115E-09	1.356115E-09	-0.472908E-01
15.20	7.561296E-10	7.561296E-10	7.561296E-10	-0.472908E-01
15.40	6.961477E-10	6.961477E-10	6.961477E-10	-0.472908E-01
15.60	6.361658E-10	6.361658E-10	6.361658E-10	-0.472908E-01
15.80	5.761839E-10	5.761839E-10	5.761839E-10	-0.472908E-01
16.00	5.162020E-10	5.162020E-10	5.162020E-10	-0.472908E-01
16.20	4.562201E-10	4.562201E-10	4.562201E-10	-0.472908E-01
16.40	3.962382E-10	3.962382E-10	3.962382E-10	-0.472908E-01
16.60	3.362563E-10	3.362563E-10	3.362563E-10	-0.472908E-01
16.80	2.762744E-10	2.762744E-10	2.762744E-10	-0.472908E-01
17.00	2.162925E-10	2.162925E-10	2.162925E-10	-0.472908E-01
17.20	1.563106E-10	1.563106E-10	1.563106E-10	-0.472908E-01
17.40	9.633287E-11	9.633287E-11	9.633287E-11	-0.472908E-01
17.60	8.033468E-11	8.033468E-11	8.033468E-11	-0.472908E-01
17.80	7.433649E-11	7.433649E-11	7.433649E-11	-0.472908E-01
18.00	6.833830E-11	6.833830E-11	6.833830E-11	-0.472908E-01
18.20	6.234011E-11	6.234011E-11	6.234011E-11	-0.472908E-01
18.40	5.634192E-11	5.634192E-11	5.634192E-11	-0.472908E-01
18.60	5.034373E-11	5.034373E-11	5.034373E-11	-0.472908E-01
18.80	4.434554E-11	4.434554E-11	4.434554E-11	-0.472908E-01
19.00	3.834735E-11	3.834735E-11	3.834735E-11	-0.472908E-01
19.20	3.234916E-11	3.234916E-11	3.234916E-11	-0.472908E-01
19.40	2.635097E-11	2.635097E-11	2.635097E-11	-0.472908E-01
19.60	2.035278E-11	2.035278E-11	2.035278E-11	-0.472908E-01
19.80	1.435459E-11	1.435459E-11	1.435459E-11	-0.472908E-01
20.00	8.354740E-12	8.354740E-12	8.354740E-12	-0.472908E-01
20.20	7.754921E-12	7.754921E-12	7.754921E-12	-0.472908E-01
20.40	7.155102E-12	7.155102E-12	7.155102E-12	-0.472908E-01
20.60	6.555283E-12	6.555283E-12	6.555283E-12	-0.472908E-01
20.80	5.955464E-12	5.955464E-12	5.955464E-12	-0.472908E-01
21.00	5.355645E-12	5.355645E-12	5.355645E-12	-0.472908E-01
21.20	4.755826E-12	4.755826E-12	4.755826E-12	-0.472908E-01
21.40	4.156007E-12	4.156007E-12	4.156007E-12	-0.472908E-01
21.60	3.556188E-12	3.556188E-12	3.556188E-12	-0.472908E-01
21.80	2.956369E-12	2.956369E-12	2.956369E-12	-0.472908E-01
22.00	2.356550E-12	2.356550E-12	2.356550E-12	-0.472908E-01
22.20	1.756731E-12	1.756731E-12	1.756731E-12	-0.472908E-01
22.40	1.156912E-12	1.156912E-12	1.156912E-12	-0.472908E-01
22.60	5.569293E-13	5.569293E-13	5.569293E-13	-0.472908E-01
22.80	4.969474E-13	4.969474E-13	4.969474E-13	-0.472908E-01
23.00	4.369655E-13	4.369655E-13	4.369655E-13	-0.472908E-01
23.20	3.769836E-13	3.769836E-13	3.769836E-13	-0.472908E-01
23.40	3.169917E-13	3.169917E-13	3.169917E-13	-0.472908E-01
23.60	2.570098E-13	2.570098E-13	2.570098E-13	-0.472908E-01
23.80	1.970279E-13	1.970279E-13	1.970279E-13	-0.472908E-01
24.00	1.370460E-13	1.370460E-13	1.370460E-13	-0.472908E-01
24.20	7.704841E-14	7.704841E-14	7.704841E-14	-0.472908E-01
24.40	7.105022E-14	7.105022E-14	7.105022E-14	-0.472908E-01
24.60	6.505203E-14	6.505203E-14	6.505203E-14	-0.472908E-01
24.80	5.905384E-14	5.905384E-14	5.905384E-14	-0.472908E-01
25.00	5.305565E-14	5.305565E-14	5.305565E-14	-0.472908E-01
25.20	4.705746E-14	4.705746E-14	4.705746E-14	-0.472908E-01
25.40	4.105927E-14	4.105927E-14	4.105927E-14	-0.472908E-01
25.60	3.506108E-14	3.506108E-14	3.506108E-14	-0.472908E-01
25.80	2.906289E-14	2.906289E-14	2.906289E-14	-0.472908E-01
26.00	2.306470E-14	2.306470E-14	2.306470E-14	-0.472908E-01
26.20	1.706651E-14	1.706651E-14	1.706651E-14	-0.472908E-01
26.40	1.106832E-14	1.106832E-14	1.106832E-14	-0.472908E-01
26.60	5.062113E-15	5.062113E-15	5.062113E-15	-0.472908E-01
26.80	4.462294E-15	4.462294E-15	4.462294E-15	-0.472908E-01
27.00	3.862475E-15	3.862475E-15	3.862475E-15	-0.472908E-01
27.20	3.262656E-15	3.262656E-15	3.262656E-15	-0.472908E-01
27.40	2.662837E-15	2.662837E-15	2.662837E-15	-0.472908E-01
27.60	2.063018E-15	2.063018E-15	2.063018E-15	-0.472908E-01
27.80	1.463199E-15	1.463199E-15	1.463199E-15	-0.472908E-01
28.00	8.633580E-16	8.633580E-16	8.633580E-16	-0.472908E-01
28.20	8.033761E-16	8.033761E-16	8.033761E-16	-0.472908E-01
28.40	7.433942E-16	7.433942E-16	7.433942E-16	-0.472908E-01
28.60	6.834123E-16	6.834123E-16	6.834123E-16	-0.472908E-01
28.80	6.234304E-16	6.234304E-16	6.234304E-16	-0.472908E-01
29.00	5.634485E-16	5.634485E-16	5.634485E-16	-0.472908E-01
29.20	5.034666E-16	5.034666E-16	5.034666E-16	-0.472908E-01
29.40	4.434847E-16	4.434847E-16	4.434847E-16	-0.472908E-01
29.60	3.835028E-16	3.835028E-16	3.835028E-16	-0.472908E-01
29.80	3.235209E-16	3.235209E-16	3.235209E-16	-0.472908E-01
30.00	2.635390E-16	2.635390E-16	2.635390E-16	-0.472908E-01
30.2				

TABLE 14. NORMALIZED PHASE MATRIX FOR FOG, MODEL 2,  $\lambda=0.40\mu$   
 \*\*2.343-0.0001

[illegible]

[illegible]





[illegible]

TABLE F8. NORMALIZED PHASE MATRIX FOR FOG, MODEL 3,  $\lambda=0.6943\mu$   
 $M=1.350-0.000i$

ANGLE	11	12	13	14
0.00	1.394375E+02	1.394375E+02	1.394375E+02	1.394375E+02
0.05	1.320746E+01	1.320746E+01	1.320746E+01	1.320746E+01
1.00	5.787157E+01	5.787157E+01	5.787157E+01	5.787157E+01
2.00	1.394375E+01	1.394375E+01	1.394375E+01	1.394375E+01
3.00	1.394375E+01	1.394375E+01	1.394375E+01	1.394375E+01
4.00	2.133157E+03	2.133157E+03	2.133157E+03	2.133157E+03
5.00	2.133157E+03	2.133157E+03	2.133157E+03	2.133157E+03
6.00	1.394375E+00	1.394375E+00	1.394375E+00	1.394375E+00
7.00	1.133157E+00	1.133157E+00	1.133157E+00	1.133157E+00
8.00	7.93282E-01	7.93282E-01	7.93282E-01	7.93282E-01
9.00	7.93282E-01	7.93282E-01	7.93282E-01	7.93282E-01
10.00	7.93282E-01	7.93282E-01	7.93282E-01	7.93282E-01
11.00	6.38353E-01	6.38353E-01	6.38353E-01	6.38353E-01
12.00	5.33641E-01	5.33641E-01	5.33641E-01	5.33641E-01
13.00	5.33641E-01	5.33641E-01	5.33641E-01	5.33641E-01
14.00	5.33641E-01	5.33641E-01	5.33641E-01	5.33641E-01
15.00	4.63289E-01	4.63289E-01	4.63289E-01	4.63289E-01
16.00	4.63289E-01	4.63289E-01	4.63289E-01	4.63289E-01
17.00	4.63289E-01	4.63289E-01	4.63289E-01	4.63289E-01
18.00	4.63289E-01	4.63289E-01	4.63289E-01	4.63289E-01
19.00	3.86362E-01	3.86362E-01	3.86362E-01	3.86362E-01
20.00	3.86362E-01	3.86362E-01	3.86362E-01	3.86362E-01
21.00	3.86362E-01	3.86362E-01	3.86362E-01	3.86362E-01
22.00	2.81262E-01	2.81262E-01	2.81262E-01	2.81262E-01
23.00	2.81262E-01	2.81262E-01	2.81262E-01	2.81262E-01
24.00	2.81262E-01	2.81262E-01	2.81262E-01	2.81262E-01
25.00	1.76688E-01	1.76688E-01	1.76688E-01	1.76688E-01
26.00	1.76688E-01	1.76688E-01	1.76688E-01	1.76688E-01
27.00	1.76688E-01	1.76688E-01	1.76688E-01	1.76688E-01
28.00	1.76688E-01	1.76688E-01	1.76688E-01	1.76688E-01
29.00	1.76688E-01	1.76688E-01	1.76688E-01	1.76688E-01
30.00	1.76688E-01	1.76688E-01	1.76688E-01	1.76688E-01
31.00	1.76688E-01	1.76688E-01	1.76688E-01	1.76688E-01
32.00	1.76688E-01	1.76688E-01	1.76688E-01	1.76688E-01
33.00	1.76688E-01	1.76688E-01	1.76688E-01	1.76688E-01
34.00	1.76688E-01	1.76688E-01	1.76688E-01	1.76688E-01
35.00	1.76688E-01	1.76688E-01	1.76688E-01	1.76688E-01
36.00	1.76688E-01	1.76688E-01	1.76688E-01	1.76688E-01
37.00	1.76688E-01	1.76688E-01	1.76688E-01	1.76688E-01
38.00	1.76688E-01	1.76688E-01	1.76688E-01	1.76688E-01
39.00	1.76688E-01	1.76688E-01	1.76688E-01	1.76688E-01
40.00	1.76688E-01	1.76688E-01	1.76688E-01	1.76688E-01
41.00	1.76688E-01	1.76688E-01	1.76688E-01	1.76688E-01
42.00	1.76688E-01	1.76688E-01	1.76688E-01	1.76688E-01
43.00	1.76688E-01	1.76688E-01	1.76688E-01	1.76688E-01
44.00	1.76688E-01	1.76688E-01	1.76688E-01	1.76688E-01
45.00	1.76688E-01	1.76688E-01	1.76688E-01	1.76688E-01
46.00	1.76688E-01	1.76688E-01	1.76688E-01	1.76688E-01
47.00	1.76688E-01	1.76688E-01	1.76688E-01	1.76688E-01
48.00	1.76688E-01	1.76688E-01	1.76688E-01	1.76688E-01
49.00	1.76688E-01	1.76688E-01	1.76688E-01	1.7



TABLE F.10. NORMALIZED PHASE MATRIX FOR POG, MODEL 4,  $\lambda=0.40\mu$   
 $\mu=2.343-0.000i$

[illegible]



TABLE F12. NORMALIZED PHASE MATRIX FOR FOG, MODEL 4,  $\lambda=0.50\mu$ 

MPL 328-0.0001

SCATTERING ANGLE	11	12	13	14	SCATTERING ANGLE	12	13	14	15
0.00	2.709977E+01	2.709977E+01	2.709977E+01	-1.462210E-14	46.00	5.346225E-02	5.346225E-02	5.346225E-02	5.346225E-02
1.00	2.709977E+01	2.709977E+01	2.709977E+01	-1.462210E-14	50.00	4.119476E-02	4.119476E-02	4.119476E-02	4.119476E-02
2.00	2.709977E+01	2.709977E+01	2.709977E+01	-1.462210E-14	54.00	2.912130E-02	2.912130E-02	2.912130E-02	2.912130E-02
3.00	2.709977E+01	2.709977E+01	2.709977E+01	-1.462210E-14	58.00	1.704784E-02	1.704784E-02	1.704784E-02	1.704784E-02
4.00	2.709977E+01	2.709977E+01	2.709977E+01	-1.462210E-14	62.00	5.019476E-03	5.019476E-03	5.019476E-03	5.019476E-03
5.00	2.709977E+01	2.709977E+01	2.709977E+01	-1.462210E-14	66.00	2.812130E-03	2.812130E-03	2.812130E-03	2.812130E-03
6.00	2.709977E+01	2.709977E+01	2.709977E+01	-1.462210E-14	70.00	1.604784E-03	1.604784E-03	1.604784E-03	1.604784E-03
7.00	2.709977E+01	2.709977E+01	2.709977E+01	-1.462210E-14	74.00	4.919476E-04	4.919476E-04	4.919476E-04	4.919476E-04
8.00	2.709977E+01	2.709977E+01	2.709977E+01	-1.462210E-14	78.00	2.712130E-04	2.712130E-04	2.712130E-04	2.712130E-04
9.00	2.709977E+01	2.709977E+01	2.709977E+01	-1.462210E-14	82.00	1.504784E-04	1.504784E-04	1.504784E-04	1.504784E-04
10.00	2.709977E+01	2.709977E+01	2.709977E+01	-1.462210E-14	86.00	4.819476E-05	4.819476E-05	4.819476E-05	4.819476E-05
11.00	2.709977E+01	2.709977E+01	2.709977E+01	-1.462210E-14	90.00	2.612130E-05	2.612130E-05	2.612130E-05	2.612130E-05
12.00	2.709977E+01	2.709977E+01	2.709977E+01	-1.462210E-14	94.00	1.404784E-05	1.404784E-05	1.404784E-05	1.404784E-05
13.00	2.709977E+01	2.709977E+01	2.709977E+01	-1.462210E-14	98.00	4.719476E-06	4.719476E-06	4.719476E-06	4.719476E-06
14.00	2.709977E+01	2.709977E+01	2.709977E+01	-1.462210E-14	102.00	2.512130E-06	2.512130E-06	2.512130E-06	2.512130E-06
15.00	2.709977E+01	2.709977E+01	2.709977E+01	-1.462210E-14	106.00	1.304784E-06	1.304784E-06	1.304784E-06	1.304784E-06
16.00	2.709977E+01	2.709977E+01	2.709977E+01	-1.462210E-14	110.00	4.619476E-07	4.619476E-07	4.619476E-07	4.619476E-07
17.00	2.709977E+01	2.709977E+01	2.709977E+01	-1.462210E-14	114.00	2.412130E-07	2.412130E-07	2.412130E-07	2.412130E-07
18.00	2.709977E+01	2.709977E+01	2.709977E+01	-1.462210E-14	118.00	1.204784E-07	1.204784E-07	1.204784E-07	1.204784E-07
19.00	2.709977E+01	2.709977E+01	2.709977E+01	-1.462210E-14	122.00	4.519476E-08	4.519476E-08	4.519476E-08	4.519476E-08
20.00	2.709977E+01	2.709977E+01	2.709977E+01	-1.462210E-14	126.00	2.312130E-08	2.312130E-08	2.312130E-08	2.312130E-08
21.00	2.709977E+01	2.709977E+01	2.709977E+01	-1.462210E-14	130.00	1.104784E-08	1.104784E-08	1.104784E-08	1.104784E-08
22.00	2.709977E+01	2.709977E+01	2.709977E+01	-1.462210E-14	134.00	4.419476E-09	4.419476E-09	4.419476E-09	4.419476E-09
23.00	2.709977E+01	2.709977E+01	2.709977E+01	-1.462210E-14	138.00	2.212130E-09	2.212130E-09	2.212130E-09	2.212130E-09
24.00	2.709977E+01	2.709977E+01	2.709977E+01	-1.462210E-14	142.00	1.004784E-09	1.004784E-09	1.004784E-09	1.004784E-09
25.00	2.709977E+01	2.709977E+01	2.709977E+01	-1.462210E-14	146.00	4.319476E-10	4.319476E-10	4.319476E-10	4.319476E-10
26.00	2.709977E+01	2.709977E+01	2.709977E+01	-1.462210E-14	150.00	2.112130E-10	2.112130E-10	2.112130E-10	2.112130E-10
27.00	2.709977E+01	2.709977E+01	2.709977E+01	-1.462210E-14	154.00	9.919476E-11	9.919476E-11	9.919476E-11	9.919476E-11
28.00	2.709977E+01	2.709977E+01	2.709977E+01	-1.462210E-14	158.00	4.712130E-11	4.712130E-11	4.712130E-11	4.712130E-11
29.00	2.709977E+01	2.709977E+01	2.709977E+01	-1.462210E-14	162.00	2.504784E-11	2.504784E-11	2.504784E-11	2.504784E-11
30.00	2.709977E+01	2.709977E+01	2.709977E+01	-1.462210E-14	166.00	1.297130E-11	1.297130E-11	1.297130E-11	1.297130E-11
31.00	2.709977E+01	2.709977E+01	2.709977E+01	-1.462210E-14	170.00	6.764784E-12	6.764784E-12	6.764784E-12	6.764784E-12
32.00	2.709977E+01	2.709977E+01	2.709977E+01	-1.462210E-14	174.00	3.557130E-12	3.557130E-12	3.557130E-12	3.557130E-12
33.00	2.709977E+01	2.709977E+01	2.709977E+01	-1.462210E-14	178.00	1.949476E-12	1.949476E-12	1.949476E-12	1.949476E-12
34.00	2.709977E+01	2.709977E+01	2.709977E+01	-1.462210E-14	182.00	9.287130E-13	9.287130E-13	9.287130E-13	9.287130E-13
35.00	2.709977E+01	2.709977E+01	2.709977E+01	-1.462210E-14	186.00	4.079476E-13	4.079476E-13	4.079476E-13	4.079476E-13
36.00	2.709977E+01	2.709977E+01	2.709977E+01	-1.462210E-14	190.00	2.062130E-13	2.062130E-13	2.062130E-13	2.062130E-13
37.00	2.709977E+01	2.709977E+01	2.709977E+01	-1.462210E-14	194.00	1.044784E-13	1.044784E-13	1.044784E-13	1.044784E-13
38.00	2.709977E+01	2.709977E+01	2.709977E+01	-1.462210E-14	198.00	5.237130E-14	5.237130E-14	5.237130E-14	5.237130E-14
39.00	2.709977E+01	2.709977E+01	2.709977E+01	-1.462210E-14	202.00	2.619476E-14	2.619476E-14	2.619476E-14	2.619476E-14
40.00	2.709977E+01	2.709977E+01	2.709977E+01	-1.462210E-14	206.00	1.302130E-14	1.302130E-14	1.302130E-14	1.302130E-14
41.00	2.709977E+01	2.709977E+01	2.709977E+01	-1.462210E-14	210.00	6.404784E-15	6.404784E-15	6.404784E-15	6.404784E-15
42.00	2.709977E+01	2.709977E+01	2.709977E+01	-1.462210E-14	214.00	3.197130E-15	3.197130E-15	3.197130E-15	3.197130E-15
43.00	2.709977E+01	2.709977E+01	2.709977E+01	-1.462210E-14	218.00	1.579476E-15	1.579476E-15	1.579476E-15	1.579476E-15
44.00	2.709977E+01	2.709977E+01	2.709977E+01	-1.462210E-14	222.00	7.982130E-16	7.982130E-16	7.982130E-16	7.982130E-16
45.00	2.709977E+01	2.709977E+01	2.709977E+01	-1.462210E-14	226.00	4.064784E-16	4.064784E-16	4.064784E-16	4.064784E-16
46.00	2.709977E+01	2.709977E+01	2.709977E+01	-1.462210E-14	230.00	2.047130E-16	2.047130E-16	2.047130E-16	2.047130E-16
47.00	2.709977E+01	2.709977E+01	2.709977E+01	-1.462210E-14	234.00	1.029476E-16	1.029476E-16	1.029476E-16	1.029476E-16
48.00	2.709977E+01	2.709977E+01	2.709977E+01	-1.462210E-14	238.00	5.082130E-17	5.082130E-17	5.082130E-17	5.082130E-17
49.00	2.709977E+01	2.709977E+01	2.709977E+01	-1.462210E-14	242.00	2.564784E-17	2.564784E-17	2.564784E-17	2.564784E-17
50.00	2.709977E+01	2.709977E+01	2.709977E+01	-1.462210E-14	246.00	1.277130E-17	1.277130E-17	1.277130E-17	1.277130E-17